

BEYOND DESERT STORM-- Conducting Intelligence Collection Management Operations in the Heavy Division

A Monograph
by
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ABSTRACT

Beyond DESERT STORM--Conducting Intelligence Collection Management in the Heavy Division, by Major George J. Franz, USA, 79 pages.

This monograph examines the capabilities of the heavy division (Armor and Mechanized Infantry Division) G2 and ACE to conduct collection management operations. It focuses on emerging ACE/ASAS concept of operations to determine if this system of systems provides the necessary capabilities to conduct synchronized collection in a dynamic, information based combat environment.

The foundation of this study, Section II, surveys intelligence collection management and dissemination doctrine. FM 34-2, Collection Management and Synchronization Planning, the primary doctrinal manual in this area, provides a clear understanding of the distinct sub-functions of CM: Requirements Management, Mission Management, and Asset Management. Since collection management doctrine, as defined in FM 34-2, has not changed since 1990, this provides a common framework for analyzing the CM system from DS/DS to present.

Section III draws heavily on the OPERATION DESERT SHIELD /DESERT STORM after action reports and historical archives to identify the primary strengths and weaknesses in the intelligence CM&D system during the last major conflict involving U. S. heavy divisions. An analysis of these reports furnishes detailed information on the specific aspects of CM operations and the impact on the intelligence operations of the division. This section includes recommendations for system improvements made by the commanders and staffs of the heavy divisions based on their DESERT STORM combat experiences.

Section IV assesses the evolving application of Collection Management doctrine by selected heavy divisions since the Gulf War. The Battle Command Training Program (BCTP) Final Exercise Reports (FERs) from 1991 through 1995 provide a contemporary basis for analysis of the CM system. This segment also includes a study of the doctrinal requirements for CM operations as well as the specific capabilities of the ACE CM personnel and equipment. By carefully analyzing the units' Tactical Standard Operating Procedures and their use of ASAS in tactical and training operations, it is possible to determine how well the ACE supports the CM requirements of the commander. This analysis reviews the equipment capabilities, particularly within the ACE structure; and it addresses the internal/external operations of the ACE and the impact of the ACE structure on CM&D operations. A comprehensive evaluation of heavy division CM&D operations should produce lessons that will assist tactical planners and G2s in improving the effectiveness of their intelligence systems.

Section V outlines conclusions, including identified strengths and shortfalls in the ACE/ASAS structure, and will provide recommendations for possible improvements in the CM system. These conclusions and recommendations, based on an analysis of the heavy division CM capabilities, draw heavily on input from G2s and intelligence officers in the heavy divisions and BCTP observer/controller staff.

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Conducting Intelligence Collection
Management Operations in the Heavy Division**

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Section I--Introduction

Advance knowledge cannot be gained from ghosts and spirits, inferred from phenomena, or projected from the measures of Heaven, but must be gained from men for it is the knowledge of the enemy's true situation. ¹

The Army's capstone Field Manual (FM) 100-5, Operations, states that intelligence operations are the organized efforts of a commander to gather and analyze information on the environment of operations and the enemy. ² The commander determines the critical information he will need to "see the battlefield," allowing him to mass combat power at the critical place and time to achieve victory. At the division level, this process includes the synchronized planning, directing, collection, analysis, processing, production, and dissemination of intelligence. The foundation for all intelligence operations is Collection Management (CM). The G2 employs the Collection Management system to translate the commander's intelligence information requirements into specific missions; CM is an essential aspect of every intelligence function. As past conflicts and current training exercises indicate, the timely collection, analysis, and dissemination of the critical intelligence required by the commander contributes significantly to success or failure in war and training.

OPERATION DESERT SHIELD/DESERT STORM (DS/DS) was a decisive victory for the United States Army. The Army's intelligence collection management system contributed significantly to this achievement. The intelligence system produced an immense volume of timely and accurate intelligence, providing the theater and component commanders a clearer account of the enemy and the battlefield than in any previous conflict. At the operational level, the information advantage achieved over the Iraqis was a decisive element of the coalition victory. In fact, certain analysts of the conflict cite it as one of the primary reasons for our triumph and label the war "The First Information War." ³

There were, however, some facets of the tactical intelligence system that failed to adequately support the maneuver division commanders' requirements. Many division G2s and Military Intelligence battalion commanders had significant difficulty managing the synchronization of the division's intelligence collection and reconnaissance and surveillance operations during combat. As the tactical situation developed rapidly, the G2s experienced difficulty conducting retasking and synchronization of the reconnaissance and surveillance effort.⁴ Division level intelligence staffs were not manned nor equipped to adequately conduct intelligence exploitation operations. The Collection Management and Dissemination system at division level was incapable of pulling intelligence data from higher headquarters based on the commander's Priority Intelligence Requirements (PIRs). Additionally, division G2s possessed a limited capability to adequately respond to the requests for information from the subordinate units or to accurately track the status of any outstanding requests within the intelligence system.⁵

The division's intelligence collection management system consistently failed to promptly distribute the critical intelligence to the commander and subordinate units. Dissemination of imagery and related "hard copy" products, such as engineer obstacle overlays and enemy situation templates, was untimely and was accomplished only through ad hoc structures and procedures. Lack of reliable intelligence communications and automated database processing capability prevented dissemination of intelligence to the various command posts within the division, as well as to the subordinate brigades and battalions, once combat operations commenced. Additionally, lack of communications and physical separation from the division headquarters prevented the divisional MI battalions from effectively synchronizing and coordinating their support to the combat operations.⁶

Through a series of comprehensive after action reviews (AARs) conducted by the G2, Third Army, immediately after the ground war, these shortfalls in the intelligence system were

recorded and documented. These meetings, attended by a majority of the 3rd Army Division G2s and MI battalion commanders, as well as key staff members, provided a critical analysis of all aspects of the intelligence battlefield combat function. The assembled intelligence officers provided detailed findings and recommendations for improvements in the tactical intelligence system. The Deputy Chief of Staff for Intelligence and the Commander, US Army Intelligence Center and School conducted additional post combat reviews, including a more detailed analysis of the division G2 staff and MI battalion structure. Many more specific comments regarding the tactical IEW system were recorded in the various Center for Army Lessons Learned (CALL) Archives, which include the official ARCENT and 3rd Army historical records as well as many other detailed records. As a result of this comprehensive review process, the Army implemented a number of initiatives designed to improve the ability of the division G2s to meet their commanders' intelligence requirements.⁷

Changes to the divisional MI Battalion and G2 section included development and adoption of the Analysis Control Element (ACE), a highly automated multi-disciplined organization designed to conduct and coordinate all staff aspects of the divisional intelligence and electronic warfare (IEW) operations. The ACE replaced the Division Tactical Operations Center Support Element (DTCSE) in the Division Headquarters and Headquarters Company (HHC) and combined it with the Technical Control and Analysis Element (TCAE) from the MI Battalion; while units have been conducting equipment fielding and unit reorganization since 1991, the Table of Organization and Equipment (TO&E) for the ACE did not formally take effect until September 1995. This new organization leverages the capabilities of the All-Source Analysis System (ASAS) to support division intelligence staff operations, including the collection management and dissemination function.⁸ (See Appendix A for DTCSE organization, Appendix B for TCAE organization, and Appendix C for ACE configuration and manning diagrams.)

The ACE/ASAS structure is designed to improve the division G2's ability to provide timely, accurate, and relevant intelligence to the commander and subordinate units. Building on the lessons learned from DS/DS and exploiting the efficiency of automated processing systems, the ACE is designed to more effectively conduct the collection management and dissemination process. To accomplish this task, the ACE CM system is designed to be responsive, flexible, and capable of meeting the commanders' requirements for intelligence. This monograph will examine the capabilities of the heavy division (Armor and Mechanized Infantry Division) G2 and ACE to conduct collection management operations. By focusing on emerging ACE/ASAS concepts it will be possible to determine if the cornerstone structure of the collection management system provides the necessary capabilities to conduct synchronized collection in a dynamic, information based combat environment.

The foundation of this study, Section II, is a survey of intelligence collection management and dissemination doctrine. FM 34-2, Collection Management and Synchronization Planning, the primary doctrinal manual in this area, provides a clear understanding of the distinct sub-functions of CM: Requirements Management, Mission Management, and Asset Management. Since collection management doctrine, as defined in FM 34-2, has not changed since 1990, this provides a common framework for analyzing the CM system from DS/DS to present.

Section III draws heavily on the OPERATION DESERT SHIELD /DESERT STORM after action reports and historical archives to identify the primary strengths and weaknesses in the intelligence CM&D system during the last major conflict involving U. S. heavy divisions. These reports also furnish detailed information on the specific aspects of CM operations and the impact on the intelligence operations of the division. This section includes recommendations for system improvements made by the commanders and staffs of the heavy divisions based on their DESERT STORM combat experiences.

Section IV assesses the evolving application of Collection Management doctrine by selected heavy divisions since the Gulf War. The Battle Command Training Program (BCTP) Final Exercise Reports (FERs) from 1991 through 1995 provide a contemporary basis for analysis of the CM system. These reports contribute information on the effectiveness of ACE/ASAS in conducting CM&D operations and identify any continuing areas of strength or weakness in the system. This segment also includes a study of the doctrinal requirements for CM operations as well as the specific capabilities of the ACE CM personnel and equipment. By carefully analyzing the units' Tactical Standard Operating Procedures and their use of ASAS in tactical and training operations, it is possible to determine how well the ACE supports the CM requirements of the commander. This analysis reviews the equipment capabilities, particularly within the ACE structure; and it addresses the internal/external operations of the ACE and the impact of the ACE structure on CM&D operations. A comprehensive evaluation of heavy division CM&D operations should produce lessons that will assist tactical planners and G2s in improving the effectiveness of their intelligence systems.

Section V will outline conclusions, including identified strengths and shortfalls in the ACE/ASAS structure, and will provide recommendations for possible improvements in the CM system. These conclusions and recommendations, based on an analysis of the heavy division CM capabilities, draw heavily on input from G2s and intelligence officers in the heavy divisions and BCTP observer/controller staff.

Section II--Collection Management Doctrine

"Collection management is the set of procedures that orchestrate the intelligence system of systems (ISOS) organizations and systems to focus the intelligence effort in support of warfighting and operations other than war."⁹ A comparison of the 1990 and 1994 versions of FM 34-2 shows that the basic CM processes have not changed significantly in the last five years since DESERT STORM.¹⁰ In fact, while the equipment and technology employed to conduct collection management operations has changed significantly in the past five years, the fundamentals of collection management have not changed dramatically since World War II. In the book Combat Intelligence in Modern Warfare, LTC Irving Heymont, an instructor at the Army Command and General Staff College in 1960 states:

Throughout history, weapons and their use have changed but basic principles of warfare have not. . . . However, like the principles of war, the basic principles of intelligence remain unchanged. An understanding of these principles will make it easier to use new and future methods and equipment and to handle new intelligence requirements.¹¹

This passage indicates the significance of mastering the doctrine and principles that drive the intelligence collection management process. LTC Heymont, describing his World War II era experience in intelligence collection, writes, "regardless of how it divided into steps, the intelligence cycle is still the basic process for deciding what must be collected, who will do it, collecting the information, figuring out its meaning, getting the meaning to the users, and its use."¹² The equipment and methods for conducting IEW operations have changed dramatically in the armored and mechanized divisions since 1960. However, the fundamentals applied to the doctrine of intelligence collection management and dissemination remain constant. Even the arrival of the ACE/ASAS architecture in the early 1990's has not led to any significant modifications to collection management doctrine.

Doctrinally, three sub-functions comprise the collection management process:

Requirements Management (RM), Mission Management (MM), and Asset Management (AM).¹³

Each sub-function deals with a different element of the intelligence cycle, ensuring synergism between IEW operations and intelligence collection management. These sub-functions are conducted as separate but integrated operations within the collection management system.

Requirements management determines what must be collected, based on the needs of the command, and when and where this information must be compiled. The collection management officer (CMO) derives these requirements from the commander's Priority Intelligence Requirements,¹⁴ Intelligence Requirements, targeting priorities, requests from subordinate units, taskings from higher headquarters, and numerous other sources. The collection manager prioritizes the requirements and translates these into Specific Information Requirements (SIRs).¹⁵ The requirements manager or CMO uses the SIRs to create the collection plan and to build the IEW synchronization matrix. Additionally, within the requirements management sub-function, the collection manager must continuously evaluate the collection and reporting and disseminate the gathered intelligence to the correct agency. To accomplish this task efficiently, the CM section must have a system to track the progress of each requirement and to correlate incoming information with outstanding requirements.¹⁶

Requirements management is the most difficult sub-function within the CM system to execute. The G2 and CM section must coordinate intelligence requirements with the commander, the staff, and the higher and lower headquarters across the depth and width of the battlefield. They must constantly involve themselves with the planning being done for future operations while simultaneously synchronizing the collection management to support ongoing missions. Enemy actions will affect the RM process; as intelligence is collected, the requirements for continued collection must be modified to account for the enemy's movements. A small modification to the

friendly plan can force the CM section to produce a complete new set of SIRs. Since the rest of the CM process relies on accurate, coordinated requirements management, the process has to be adequately accomplished for the intelligence cycle to operate successfully.

Mission management entails refining the intelligence needs developed in requirements management into specific indicators and tasks to collection assets, defining how the collection will be accomplished. Within the mission management sub-function, the collection manager develops a collection strategy, synchronizing the collection and dissemination schedule with the PIR. This process includes development of Specific Orders and Requests (SORs),¹⁷ which include collection taskings to subordinate units and requests for support to higher and adjacent units. Mission management also includes exploitation management, which involves retrieving available intelligence from corps, theater, or national level agencies.¹⁸

The third sub-function of CM&D, Asset Management, entails the actual collection activity and the resource allocation in support of the collection strategy. This also involves specific intelligence exploitation operations and systems management.¹⁹ The unit tasked with the collection mission conducts asset management in close coordination with the collection management section.

Within the framework of these three functions, the collection management cycle is organized into six fundamental steps. Each of these steps involves numerous independent operations and requires careful synchronization and continuous review. The six steps in the CM process are: Develop Requirements, Develop a Collection Plan, Task/Request Collection, Disseminate, Evaluate Reporting, Update Collection Planning.²⁰ These steps within the CM process are designed to ensure complete and uninterrupted integration of the three sub-functions described above. This relationship enhances the efficiency of the CM process both internally and externally. To clearly understand the complexity of the collection management function, one must

have a thorough understanding of the specific information management and synchronization and coordination responsibilities within each of the six procedures.

The most critical and difficult step in the collection management process is Developing Requirements. FM 34-2 defines this process as, “The identification, prioritization, and refinement of uncertainties concerning the threat and the battlefield environment that a command must resolve to accomplish its mission.”²¹ During the deliberate decision making process, the CMO participates in the staff wargaming. Using this process, the entire staff and commander determine the critical decisions that must be made and what information the commander requires to make them. Information involving the enemy, weather, or terrain becomes Priority Intelligence Requirements.

The CMO, having participated in the development of the friendly course of action and the commander’s critical information requirements, then develops a collection strategy to support the operation. He analyzes the requirements, ensuring that they are valid and complete. The CMO combines the requirements originating from the decision making process with any other collection tasks, such as those established to support targeting or to answer requests for information from subordinate units. The entire set is then prioritized, ensuring the most critical requirements, the commander’s PIRs, are paramount. Finally, the requirements manager develops SIR sets for each intelligence requirement. These SIRs provide the detailed intelligence needs used to develop the collection plan.

The second step in the cyclical CM&D process involves Developing the Collection Plan, which applies specific collection assets to collect against the required targets. This critical step ensures the collection is synchronized and integrated with the operational plan. The mission manager applies the most effective collection asset against the appropriate target, based on specific characteristics of the collection system, such as accuracy, range, platform type, and technical

capabilities. Once the CMO has developed a plan that provides the proper redundancy, mix, and integration of assets, he prepares a set of specific orders or requests. He then uses the SORs sets as the basis for tasking or requesting collection.

Development of SIR/SOR sets is a complex task, requiring management of a vast amount of data in the CM section. To develop SIR/SOR sets, the intelligence requirements are first entered into the collection management system, either manually into a standard paper log or into an automated processor. The requirements manager must coordinate with the intelligence analysis section for development of specific intelligence indicators, those details of the enemy activity or inactivity that will indicate an enemy course of action. Using these indicators, the requirements manager develops the specific information requirements that will address each of the indicators. The CM soldier uses a collection worksheet to develop the set of specific orders or requests for each of the SIRs.²²

The number of individual requirements, orders, and requests resulting from this process can be an extraordinary challenge to manage. Divisions generally have four to ten PIRs in effect for the current operation and an equal number developed for future operations. Each PIR generates a number of SIR, depending on the enemy order of battle information available and identified gaps in the threat database. The CM section develops SIRs/SORs for each of the intelligence disciplines, imagery intelligence (IMINT), signals intelligence (SIGINT), measurement and signature intelligence (MASINT) and human intelligence (HUMINT).²³ This process ultimately forces the CM section to manage hundreds of individual information requirements simultaneously during combat operations.²⁴ This number would also include the intelligence requirements to support targeting, lower priority information requirements, requests for information from subordinate units, or taskings from higher headquarters.

The collection manager then uses the SOR sets to prepare a collection plan. While the collection plan format is not standard, at a minimum it should include the PIRs, intelligence indicators, SIRs, SORs, and collection agencies or assets available.²⁵ (See Appendix D for sample Collection Plan Format.) This collection plan is used to prepare the intelligence and electronic warfare (IEW) synchronization matrix. The IEW synchronization matrix assists the CMO and G2 in tying the collection plan to the operational plan. It depicts the operational decisions and collection schedule, as well as the time required for processing and delivering the collected intelligence to the decision maker.²⁶ (See Appendix E for sample IEW Synchronization Matrix.)

The third step in the collection management process involves tasking or requesting collection, based on the requirements identified and refined in steps one and two. In this process, the asset manager or CMO provides the actual mission type tasking order or request for intelligence information to the collector. The division collection manager employs various methods to conduct this tasking/request process, based on unit SOP. Fragmentary orders may be sent verbally or through automated means to units within the division. The collection emphasis message, a narrative form of the IEW Synchronization matrix developed in step two, may also be used as a tasking/requesting device.²⁷ The G2 and CMO must continuously coordinate with the G3 to ensure that all collection mission taskings are disseminated properly and are synchronized with the tactical operation. The CM section will pass the tasking/collection information to the collecting unit as quickly as possible to expedite efficient operations.

Disseminating gathered intelligence to the user is the next step in the collection management process. Ultimately, the information must get to the requester in time to affect the associated decision. The CMO accomplishes this most effectively by direct dissemination, sending the intelligence from the collection sensor directly to the engagement system or decision maker.²⁸ The collection manager must have determined in advance how much information to disseminate

and the means for transmission. At the division level, dissemination may be done through the FM voice net, MSE, tactical facsimile, MCS, local area network, and courier. The CMO must also track each critical intelligence report to ensure that it has reached the correct user on time and to avoid redundancy in communications.

Step six in the process consists of evaluating the collection effort. The CM section ensures the commander's PIRs are being answered and that the division's intelligence assets are collecting against the appropriate targets to support the operation. Evaluation includes monitoring the incoming intelligence and data bases to determine when and if the SIRs and PIRs are being answered. Monitoring also ensures that the collection operations are being executed in concert with the tactical maneuver. The CM section must maintain close coordination with the intelligence analysis section, the targeting cell, and the tactical operations center to ensure synergy between intelligence collection and tactical operations. The CMO provides constant feedback to the collectors and retasks assets based on the completion of assigned collection missions.

Adjustment of the collection plan based on the results achieved is the last step in the collection management process. As SIRs and PIRs are satisfied, the CM section develops taskings to answer existing requirements or to facilitate future operations. The operators make modifications and adjustments to the collection plan based on the flow of operations and the actions of the enemy. The CMO develops updated SIR/SOR sets as necessary. In addition, the mission manager cues assets to collect on required targets based on reports received. The process continues to evolve, keeping the intelligence collection and dissemination operations synchronized with the tactical situation. The intelligence cycle continues, repeating the steps in an uninterrupted process.²⁹

Section III--Case Study Analysis--OPERATION DESERT SHIELD/DESERT STORM

Field Manual 34-2 and related publications specified in Section I contribute to the doctrinal foundation for the study of collection management. Operation DESERT SHIELD/DESERT STORM After Action Reviews and the Center for Army Lessons Learned (CALL) Gulf War Archives provide the practical case studies necessary to evaluate the doctrine's utility. By examining the execution of our doctrine in wartime we will gain a truer understanding of its systematic application. This establishes the measure of its adequacy to support the division's tactical intelligence operations.

While most senior intelligence officers and tactical commanders recognize DESERT STORM as a success for the intelligence system, a post war analysis identified some significant elements of IEW performance requiring improvement. Many of the key lessons learned, recognized by the Corps and Division G2s and Military Intelligence Battalion and Brigade commanders during the post DS/DS AARs, related to intelligence Collection Management and Dissemination. The senior tactical intelligence officers present determined that significant components of the CM&D process required refinement and revision. These areas included IEW synchronization planning methodology; improvement in connecting collection with intelligence production; and integration with the MI Battalion's TCAE during tactical operations. Additionally, the group noted several significant shortcomings that affected IEW operations. These deficiencies in the IEW system included: the finite number of collection systems available to support tactical operations; the large quantity of competing requirements for intelligence; the lack of communications and computer links to enable seamless IEW operations; the difficulty conducting IEW synchronization planning; and the limited intelligence dissemination capability.³⁰

DESERT STORM and the CALL Archives contribute two excellent sources for evaluating the conduct of collection management operations by armored and mechanized divisions.

The extensive after action reports produced following DS/DS furnish a clear record of the utility of collection management doctrine. Examining the specific execution of the primary collection management functions and tasks under combat will provide the basis for examining the impact of ACE/ASAS systems on CM&D operations. The 1994 version of FM 34-2 contains the most current collection management doctrine, therefore, it furnishes the contemporary model for examining the various findings. The six doctrinal steps in the collection management process will serve as the common framework for analyzing the DS/DS and BCTP after action reports.³¹ Examining collection management in this systematic fashion, and tying the examination closely to the current doctrinal model, provides specific findings relevant to current operations. This connection of the model to actual operations makes possible a study of the impact of ACE/ASAS on collection management and dissemination operations.

As described in Section II, DS/DS AARs and Archives illustrate that the most critical steps in the collection management process are identifying and prioritizing the intelligence requirements. The two main steps that comprise the Requirements Development Process, analyzing and consolidating requirements and developing SIRs to support acquisition, will be the focus for discussion and analysis. To accomplish these tasks, the collection manager must first consolidate the competing requirements to support force protection, situation development, targeting, battle damage assessment (BDA), indications and warnings, and intelligence preparation of the battlefield (IPB). The CMO must then develop, in concert with the G2 analysis element, specific intelligence requirements to support creation of the collection plan. This allows the CMO to allot the division's scarce IEW resources to support the numerous intelligence collection tasks more efficiently.³²

As the DS/DS historical records indicate, division G2s and CMOs consistently failed to effectively identify the commanders' requirements. PIRs developed during DESERT STORM did

not adequately orient the CM system. The PIRs contained multiple imbedded questions and encompassed activities over too great a geographic area. Many failed to identify a specific target unit or type unit or contained no indication of the latest time the information would be of value (LTIOV) to the commander. Often, the PIRs did not address the actual needs specified by the commander to support his ability to make tactical decisions and were instead developed independently by the CMO/G2. Frequently, the CMO neglected to update or modify the PIRs as changes occurred or did not disseminate the PIRs. The requirements manager inadequately developed the SIR sets necessary to focus the collection system. Ultimately, PIRs must be correctly created for the collection management system to function adequately.³³

An example of inadequately developed PIRs are those produced by 24th Infantry Division (24 ID) commander and G2 to support combat operations during DS/DS. The G2 reported that the division commander developed a set of standing intelligence requirements. These remained in effect throughout the operation. As recorded in his inclusive account of the 24ID intelligence operations during DS/DS, LTC Richard Quirk notes:

His [24ID CG] PIR[s] were:

1. Location and strength of enemy artillery battalions and fire control centers which could influence the Division zone.
2. Location and strength of enemy armor and mechanized battalions within 24 hours of the Division zone.
3. Location and strength of enemy division and brigade forward and main command posts within 50 kilometers of the Division zone.
4. Location and strength of enemy deliberate defenses in the Division zone.
5. Location and condition of routes capable of supporting heavy wheeled vehicles in the Division zone -- specifically 5,000 gallon tankers.
6. Condition of crossing points across the sebkhas (desert wetlands -- the "dismal bog") at the approaches to the Euphrates River Valley.
7. The location of civilian and military fuel stockpiles in the Division zone.

Obviously, these were not written in the classical . . . format My only influence was in focusing our efforts on what I considered to be the two elements of information generally needed about the enemy; his location and his strengths.³⁴

An examination of one of these PIRs illustrates that the inability to establish specific, focused requirements handicapped the collection management process. This, in turn, led to a situation where the intelligence system could not meet the commander's demands. The standing order from the 24ID CG to know the location of all enemy battalions within 50 km of his area of operations was an impractical task for the intelligence system. Ultimately, this PIR did not support the intelligence collection management process. The 24ID CG envisioned encountering 30-50 enemy maneuver battalions during the attack.³⁵ Collecting on and tracking this number of maneuver units, as well as the number of units included in the other six PIRs, overwhelmed the division's CM scheme. In addition, the area of operations involved was over 300 kilometers in depth and over 20 kilometers in width; the target area exceeded 6000 square kilometers. Collection to support these requirements was not feasible given the limited numbers of collection assets available, the tremendous area of operations, and the large number of enemy units involved.

Besides handicapping the division's IEW operations, the all-encompassing PIRs listed above placed an excessive burden on the supporting Corps and EAC CM system. Since the division could not collect to support even a fraction of the requirements, they generated Requests for Intelligence Information (RII) to higher headquarters to fill the gaps in their capability. During DS/DS, the large number of nonspecific RIIs overwhelmed the IEW system. MG John Stewart, noted the effects of this problem on the 3rd Army G2 and IEW system:

... we had competing requirements, many of them from the Corps themselves. With multiple number one priorities over an area the size of Montana and with competing requirements from other agencies and national decision makers, we did not satisfy everyone all the time. . . . Another aspect of the challenge of providing top down tactical intelligence was the need to define what the Corps wanted. The system the corps should have used was broken. Of over 400 requests for information (RFIs) we received, only 20 applied to the Corps commanders' stated campaign needs. The others were extraneous.³⁶

The lack of properly developed PIRs prevented the CMO from developing effective SIRs. The CMO was unable to translate vague requirements into detailed, collection-oriented questions;

the G2 analysis section could not effectively prepare the sets of indicators corresponding to the PIRs. Ultimately, the lack of effective SIR development hindered the effectiveness of the remaining CM tasks. The quality and utility of the requirements, PIRs and SIRs, developed during this process directly affected Step Two of the CM process, development of the collection plan.

Taking into account the intelligence requirements identified in Step One, the G2 and CM section must design a strategy to collect the necessary data. They subsequently build a plan that maximizes the use of organic collection assets while exploiting the intelligence collected by Corps and EAC systems. As the DS/DS AARs indicate, collection planning continued to be a significant challenge for the tactical G2. MG John Stewart, then the 3d Army G2, explained this challenge in his post DS/DS report:

The basics of IEW doctrine are sound, but some areas need refinement. . . . We did not have the luxury, as often happens in exercises or peacetime, to throw assets over an entire area and vacuum everything up, leaving it to the analyst to sort out the answers to a requirement. We had to bring collection and production together in the same effort.³⁷

During DS/DS, the shortcomings in CM operations resulted from several battlefield restrictions placed on IEW operations. First, operations security requirements and deception operations prevented the heavy division's organic collection assets, especially the ground based SIGINT collectors, from deploying along the front lines until the ground combat operations started. Lack of adequate division HUMINT planning resulted in disjointed and uncoordinated collection. Once the ground attack commenced, the ground-based collectors were too slow to maintain pace with the heavy division's tanks and infantry fighting vehicles, rendering them unable to support the maneuver forces effectively;³⁸ this caused many G2s to place less emphasis on collection management during combat, further reducing the effectiveness of the divisions' intelligence operations.

Inadequate ability to identify the specific intelligence needs of the command, combined with the lack of emphasis on the CM function, hampered the development of detailed and effective Specific Orders and Requests. Without these detailed instructions, essential to conduct mission and asset management, the IEW system operated less effectively. LTC Quirk, explaining his G2 section's difficulty in conducting effective CM operations wrote, "I worked on a collection management database to assist in organizing requirements, assigning them logically to collectors, and balancing taskings across the organization. Unfortunately, we did not *have sufficient time to devote to its full development or testing*" (my emphasis).³⁹

Inadequately developed SORs significantly affected the division's intelligence collection operations, causing a disordered and unfocused effort. The complexity of IEW synchronization required the CMO or mission manager to develop specific orders for every type of collection asset, including all HUMINT, IMINT, SIGINT, and MASINT collectors. The CMO had to link these taskings to the commander's critical information requirements and synchronize the IEW missions with the scheme of maneuver. In DS/DS, 24ID experienced difficulty accomplishing this task.

LTC Quirk noted:

There was no one doctrinally steering the interrogation effort. In fact, no steering mechanism exists at the tactical level . . . the interrogators themselves did not see a need for specific guidance. They were satisfied if they knew the CG's Priority Intelligence Requirements, which, in reality, are too general to efficiently steer any collector.⁴⁰

To solve this problem, 24ID established a HUMINT tasking officer position. Instead of executing CM doctrine and developing HUMINT-oriented taskings through the Mission Manager, they established a specialized, non-doctrinal position to accomplish one aspect of the CM process. This would have been unnecessary, and the available personnel better utilized, had they focused their efforts on executing the basic CM doctrine.

While inadequate development of required specific orders and requests hampered management of the division's collection assets, obtaining intelligence from higher headquarters also presented a significant challenge. This difficulty was quite evident during DS/DS. The divisions relied heavily on Corps and EAC units to provide a bulk of their intelligence, especially while OPSEC considerations prohibited the division's organic collection assets from establishing collection positions in the forward areas. This "top down" system, however, did not satisfy the demands of the division commanders.

Lack of a seamless IEW communications architecture prevented the division G2s from effectively capitalizing on the extensive amount of intelligence collected by the national and theater agencies. Tactical units either lacked the communications and data processing systems necessary to conduct intelligence exploitation operations, or they were provided with the systems too late in the operation to be useful. Instead, most units placed liaison officers at key theater intelligence facilities and at corps and adjacent unit headquarters to ensure a continuous influx of timely intelligence. The 1st Infantry Division (IID) G2, commenting on the division's inability to exploit intelligence from higher headquarters, commented:

Current Intel systems are not responsive to the tactical commander . . . there is no current system that directly supports the tactical commander . . . products that arrive at division level are often untimely and of little value to the current situation. . . . Divisions had to send Intel officers to Army and EAC level to personally sort through imagery and various intelligence products to get current critical intelligence information. Intelligence was not a push system in this war. Commanders developed PIRs and literally ran all over the country pulling fragments into useable intelligence.

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The situation in IID was not unique. To maintain intelligence connectivity, and to assure receipt of relevant intelligence from Corps and EAC, 3rd Armored Division (3AD) assigned liaison officers to the Seventh Corps Headquarters and to the Theater Joint Intelligence Center (JIC). Additionally, the division G2 placed an imagery analyst in the Joint Imagery Processing Center (JIPC) to procure relevant imagery for the division. The division commander made his helicopter

available for courier runs to pick up and disseminate intelligence products. The inability of the CM system to support exploitation operations forced the division G2s to implement these ad hoc measures. No method existed, other than deploying liaison officers, to retrieve useable, timely, and relevant intelligence information from higher headquarters.⁴² 24ID, 3AD, 1AD, and 1ID all sent liaison officers to higher headquarters and other key theater level facilities to gather intelligence for their commands. Each division established a courier system to obtain the intelligence and to deliver it to the commander. The G2s clearly needed liaison officers and couriers to "pull" intelligence from echelons above division.

Tasking and requesting collection is the next step in the CM process. During wartime operations the G2 must complete coordination with higher, lower, and adjacent headquarters to enable effective intelligence collection operations. While equipment and procedures have changed during the last fifty years, the basic concepts driving the CM intelligence tasking process remain the same as those of World War II:

In assigning reconnaissance missions, broad generalizations such as 'report strength and disposition of the enemy' are avoided. The specific time that the information is desired or the latest time that the information will be of value is included in the order or request. When more than one mission is assigned to one agency, definite priorities should be assigned in accordance with the importance of the information requested and the time it is needed.⁴³

While the underlying principles of the process appear fairly simple, accomplishing this mission proved to be a difficult challenge for the division G2s during DS/DS. Units did not place the required emphasis on developing sound CM procedures and SOPs. During the initial phase of DS/DS, the 24ID G2 put the CM section soldiers in charge of map distribution; they were unable to properly train or to develop refined procedures for executing CM operations in combat. The 3AD G2 used many of the key CM personnel to conduct liaison operations instead of having them conduct intelligence collection management. The lack of emphasis on CM operations appears to be

widespread. Reporting on the status of collection management tasking and synchronization capability at the outset of DS/DS, Major Richard Halblieb of 3rd Army G2 staff commented:

At the outset of DESERT SHIELD/STORM, collection management elements at all echelons were found to be understaffed and ill prepared to execute the synchronization of intelligence collection. . . . This shortfall was essentially in two areas: (1) a lack of knowledge of theater and national collection assets (all disciplines--SIGINT, IMINT, and HUMINT); and (2) a lack of skill in synchronizing the overall collection, production, and dissemination efforts to adequately support the commander. . . IEW synchronization planning at every level requires knowledge of all systems and functions that can be brought to bear on the commander's intelligence needs.⁴⁴

The CMO should thoroughly plan and coordinate the intelligence collection mission; its execution requires the same operational precision as any other tactical mission. The planning, synchronization, and execution must be done in close coordination with the G3 and division staff, as well as the tasked headquarters: and it must be closely tied to the tactical operations. The G2 cannot conduct the intelligence collection tasking mission independently.

At the start of DS/DS operations, an initial period of adjustment occurred, during which the division G2s and G3s established and tested procedures to accomplish effective combat IEW operations. To support their tactical operations, the 24ID command group established a series of daily reconnaissance and surveillance (R&S) planning and coordination meetings, initially consisting of the G2 and subordinate unit S2s. This method proved to be ineffective in meeting the CG's requirements, so the ADC took charge of the process. This proved to be ineffective as well. Finally, the G2 and ADC determined that the commander and G3/S3s needed to be more involved in planning and synchronizing the R&S operations. As LTC Quirk explained:

In fact, it was the division's first tactical operation, and the only tactical operation of the moment. . . . This was not the business of intelligence officers, it was commander's business . . . the ADC-M moved the meeting to the cavalry squadron command post, and changed the membership to commanders and their S3s. . . . The S2s and I assisted by recommending R&S priorities and objectives.⁴⁵

The CM process could not work effectively in wartime without the participation of the commander, operations officer, and the staff. While the G2 and S2s played a critical role in planning the collection operations, ultimately, it is a tactical operation and the commander's business. The same level of detailed planning, coordination, and staff involvement necessary to conduct tactical operations is required for intelligence collection to succeed as well.

Another wartime obstacle to potent IEW operations in the divisions was the difficulty G2s and CMOs encountered coordinating and synchronizing actions with the organic Military Intelligence Battalions. This was caused by the insufficiency of adequate communications between the CM section and the MI Battalion Headquarters and TCAE. The MI Battalion provides the primary deep collection capability for the division; therefore, this lack of coordination severely hampered tasking and management of organic collection operations. Since the MI Battalion contains the division's Enemy Prisoner of War Interrogation Teams, Counterintelligence Teams, Ground and Air Based Signals Collectors, and the TCAE, it was critical for the CMO and MI Battalion HQ to be closely connected.

The great distances between units and headquarters, the speed of operations, and the lack of adequate communications hampered the coordination between the G2 and the supporting MI Battalion Headquarters. The G2s had not foreseen these difficulties, nor had the divisions fully tested the IEW system prior to the start of ground combat to identify such problems. Orders prohibited the maneuver divisions from deploying any collection assets within range of the Iraqi front lines before G-day; therefore, the MI Battalions were not able to collect combat information or division focused intelligence. Because of this restriction, many units, including 24ID, were caught unprepared for the difficulties they would meet with once the ground attack started:

With no collection assets to manage, the CM&D Section missed its great opportunity to rehearse the extremely difficult collection management mission. The lack of information coming in from our own collectors prevented CM&D from envisioning its role in directing analysis and in redistributing the division's reports.⁴⁶

This situation forced many divisions to reposition their TCAE or an element of the headquarters to the division main command post. 3AD's 533rd MI Battalion collocated their TCAE with the G2 at the division main CP to facilitate tasking and reporting and coordination of the division's IEW operations. 1AD established a similar arrangement, positioning an element of their MI Battalion Headquarters with the main command post.⁴⁷ This temporary arrangement allowed the divisions to maintain connectivity between the CMO and tasked IEW collectors.

Another aspect of the process of developing the collection plan, requesting intelligence acquisition, functioned inadequately during DS/DS. Units demonstrated an inability to manage requests from subordinate units and to properly monitor the status of their requests to the higher headquarters. They failed to develop procedures to adequately ensure synchronized intelligence collection support from corps and echelon above corps intelligence assets.

The system established to process intelligence requests from lower to higher headquarters and to deliver the requested information to the original requester in place during DS/DS was dysfunctional. The division G2s submitted requests for intelligence to their parent corps, yet received little intelligence directly responding to their requests. This resulted in a "shotgun blast" approach to managing the RII system:

To the best of my knowledge, very little imagery came to Corps addressed to the division. It seemed that Corps was sending us whatever they could spare, rather than what we had requested. There seemed to be no accountability at echelons above Corps for the requests that we had generated.⁴⁸

As noted earlier, the unmanageable number of requests for intelligence from lower echelon units compounded 3rd Army's difficulty providing efficient support to corps and divisions. The wartime system did not support seamless, "top down" IEW operations.

While planning and synchronization of the intelligence collection effort was a critical element of the division's IEW operations, the system was ultimately judged by its ability to deliver the collected intelligence timely and efficiently to the commanders and subordinate units. For this

reason, dissemination of intelligence is the one aspect of CM operations that has received the bulk of DESERT SHIELD/DESERT STORM analysis and criticism. The tremendous difficulty division G2s had in getting the required intelligence to the commander and the subordinate units was, perhaps, the biggest single challenge faced during the war.

During the war, two factors combined to overburden the intelligence dissemination system. First, the initial lack of SIGINT and HUMINT from the battlefield forced the divisions to rely on imagery as the primary source of intelligence; the divisions were not equipped or manned to conduct effective imagery exploitation operations. Analysts developed and annotated the imagery at theater level processing centers and then couriers delivered it to the maneuver commanders. There was no distribution system in place that could handle the incredible quantities of imagery related intelligence products. One frustrated officer on the 3rd Army staff commented:

Unit TOEs/manning at corps and division must include imagery analysts to fully benefit from the products provided. Sufficient resources must be provided, ranging from personal computers with connectivity, reliable autodin circuits, dedicated land and air transport organic to CM&D's dissemination section and dedicated personnel to courier products. The concept of reinstituting the motorcycle couriers of WWII fame was raised shortly after the air war commenced. Since the volume and weight transported during DESERT SHIELD/STORM sometimes exceeded 500 pounds/9 cubic feet, this would not always be a viable solution.⁴⁹

While the ad hoc dissemination system worked in getting most of the imagery from corps to division, there was still no method to deliver it promptly to front line units. Dissemination of intelligence to maneuver brigades, once ground combat started, was extremely difficult. Brigade commanders complained that by the time they received intelligence on enemy formations, they were already by them.⁵⁰

The second challenge to the tactical intelligence dissemination system dealt with the great volume of intelligence flowing from corps and echelon above corps to the divisions. There was no way to sort the data and to pass only those messages that applied to a specific unit's requests or

requirements. Instead, a vast quantity of message traffic was forced through the system; units had to retrieve and sort through the mountains of raw message data manually.

Some divisions fielded automated systems to provide a limited ability to receive message traffic and to receive limited secondary imagery. Unfortunately, these systems were fielded too late to be useful during combat; 3rd AD received its secondary imagery dissemination system on 12 February, days before the offensive operation commenced. The system was not fully functional prior to the commencement of ground combat. Additionally, the division did not receive the "Warrior" system, a precursor to ASAS, until after the ground combat had ended.⁵¹

Additionally, most divisions had no automated way to pass message traffic to their subordinate brigades. 3AD relied on tactical MSE facsimile, FM radio, or courier to supply intelligence to the maneuver brigades. 24ID developed its own internal message network, using personal computers and internally developed software linked through tactical communications.⁵² While these arrangements allowed the division G2s to pass large quantities of raw message traffic to the subordinate S2s, they did little to facilitate RFI management or system efficiency. The brigades received large amounts of raw traffic, which they then had to sort and analyze on their own. These methods, however, were the best available with existing technology and personnel.

In conjunction with the dissemination of the collected intelligence, the CM section must thoroughly evaluate the incoming intelligence information to assure that collection is synchronized with the tactical operations, to correlate reports to the identified requirements, and to provide feedback to the collectors on the effectiveness of their collection. During DS/DS operations this task posed a serious challenge to the division CM sections.

The chief difficulty in accomplishing practical evaluation lies in the section's inability to monitor and evaluate the large quantity of intelligence traffic flowing into the division. Without an

adequate automation capability, the requirements manager could not read, log, and evaluate the entire influx of reports. This inability prevented adequate evaluation of the collection operation.

During the war, the volume of intelligence flowing from higher headquarters quickly overwhelmed the data processing capabilities of most divisions. Since there was no automated capability to sort the incoming data, the CM section had to process all reports, even those which did not directly impact on the division's operation or satisfy a division requirement. The 24ID G2 reported that the division CM section was taxed maintaining pace with the incoming message flow: "That facility [SACC] gave us not only the six to ten daily summary cables, but also a total of 500 to 1000 messages a day for our analysts. The message traffic kept us extremely busy."⁵³ Additionally, there was no method available to match incoming reports to a specific requirement. The CM section, in conjunction with the analysis section, was forced to sort through thousands of reports to answer the commander's PIR and subordinate unit RIIs:

The disseminators were not analysts; I did not have enough analysts to use them in CM&D. The disseminators were smart soldiers who became experts on the questions being asked. They were a switchboard, sending information which had been processed by the others to elements of the division needing it.⁵⁴

The situation in 24ID was typical of most divisions. There was a lack of experienced analysts, especially in the collection manager sections. While they were barely able to manage the flow of intelligence through the division G2, they were incapable of conducting the thorough level of analysis necessary to evaluate reporting.

Based on the evaluation of the intelligence collection effort, the CMO must be constantly prepared to update and modify the collection plan. Updating the collection plan requires the CMO to react to the myriad battlefield conditions, including; Changing Enemy Situation, Weather Situation, Terrain Situation, Informational Needs, Information on Hand, Friendly Plans, Collector Capabilities, Collector Positions, Collector Workload, and Changing Time.⁵⁵

Adjusting the collection plan, during tactical operations, requires the CM section to reassess all the collection management steps and functions. They must hastily execute the CM

planning process, including developing updated PIRs, SIRs, SORs, and taskings. This process must be coordinated with the battle staff and the updated information must be disseminated to the command. One experienced G2 commented, "I had rarely seen a collection plan updated successfully as an operation progressed. Early in the [DS/DS] operation, the real priorities changed, but there was no real vehicle for redirecting subordinate unit efforts." ⁵⁶

During DS/DS, units attempted to pre-plan adjustments to the collection plan by developing reserve or phased PIRs. 24ID, 11D and 3AD G2s all prepared sets of PIRs to address changing intelligence requirements as the tactical operation continued. ⁵⁷ While this technique allowed for some advanced planning, it did not address all the variables affecting collection. The G2s were unable to refocus their intelligence collection efforts as quickly as the ground combat went on; intelligence collection and analysis lagged behind the needs of the commander in the fast paced operation.

Analysis of DESERT SHIELD/DESERT STORM After Action Reviews and detailed records from the CALL Archives clearly indicates that most divisions required significant improvement in their ability to conduct intelligence collection management. The senior leadership of the Army MI Corps, seeking to solve this problem as well as others within the divisions G2 IEW system, pressed for development and fielding of the Analysis and Control Element. This new structure within the division G2, based on the automated data processing and analysis capabilities of the All-Source Analysis System, was designed to improve the division's capability to plan, synchronize, and execute IEW operations.

Section IV--Case Study--Battle Command Training Program 1991-1995 (Evaluation of ACE/ASAS)

The manual intelligence management, analysis, and dissemination methods used in the past are inadequate in this age of automated information. Successful operations at the tactical and operational levels require and increased ability to synchronize fires, have faster access to intelligence, and enhance situational awareness and effective force protection.⁵⁸

While the DESERT STORM after action reviews afford a detailed examination of IEW operations during the last major conflict, the Battle Command Training Program (BCTP) furnishes a corresponding level of analysis for IEW operations conducted during recent training exercises; the Battle Command Training Program Final Exercise Reports (FERs) for the period 1991 through 1995 provide the practical case studies necessary to evaluate the doctrine's utility in the post war environment. Since DS/DS, heavy divisions have continued to modify and refine the execution of CM&D operations in support of training and tactical operations; additionally, units have begun to capitalize on the capabilities of the ASAS to conduct collection management operations within the ACE. The divisional WARFIGHTER (WFX) exercises afford the most realistic and arduous peacetime test of the heavy division IEW operations and the best medium for examining the impact of ACE/ASAS on Collection Management Operations.

The staff of Observer/Controllers from the Battle Command Training Program carefully observe these command post exercises. They conduct a precise analysis of all aspects of the action, contributing detailed feedback to the division commander and staff concerning their operational effectiveness. The Final Exercise Reports record these observations, which contain the specific comments regarding the division staffs' execution of prescribed doctrine in their battlefield operating systems. In the intelligence arena, these FERs render a comprehensive analysis of all aspects of division IEW operations, including Collection Management. These observations contribute the groundwork for a critical analysis of current CM doctrine.

These BCTP FERs also provide the most effective measure of the impact of the ACE and ASAS on the conduct of CM operations. Individual components of the ASAS, including various versions of the automated workstations and processors, have been fielded since 1990. The 2AD began receiving ASAS in 1991, and the full ACE/ASAS concept was fully implemented in late 1993; the 24ID was the first heavy division to complete the ASAS New Equipment Training and accomplish the transition into the ACE structure.⁵⁹ Most other units will field the full complement of ASAS equipment and complete new equipment training and completely reorganize into the ACE structure during 1995. As units operate with the new equipment and configuration, they learn and record new ways to use the equipment. Additionally, innovative Tactics, Techniques, and Procedures (TTP) are being developed to exploit the capabilities of the system. A base of information now exists that allows an initial analysis of the impact of ACE and ASAS on collection management operations.

Overall, the BCTP FERs are generally positive in their evaluation of the G2s' use of ASAS to support intelligence *analysis and production*. Typical of the BCTP comments is the following:

The G2 used the ASAS intelligence automation systems in the analysis control element (ACE) to process vast amounts of data into effective analytical and targeting support to the CG . . . using the ASAS all-source work stations, G2 analysts prepared a solid picture of the battlefield to include pinpointing the main defensive zone of the enemy's first tactical echelon. The G2 also communicated this picture accurately to the division's tactical CP, where the CG was controlling the battle.⁶⁰

The FERs, while showing enhancement in many aspects of the IEW process, continue to identify Intelligence Collection Management as the area "most requiring improvement, review, and continued training emphasis."⁶¹ These reports cite the divisions' inability to determine the commanders' intelligence needs and their failure to focus and synchronize intelligence collection operations as two of the most significant shortcomings in the IEW system. Additionally, the BCTP

Perceptions documents from 1993 and 1994 indicate units are generally deficient in conducting many aspects of collection management operations.⁶²

This trend may be declining, however, as units continue to refine ACE and ASAS operational procedures and develop better methods of exploiting the capabilities of the new organization and equipment. Recent BCTP FERs indicate, however, that for units to continue to receive the maximum benefit from the capabilities of the ACE and ASAS, they must improve on their training programs; units must also find ways to deal with challenges posed by personnel shortages in the austere manned ACE to accomplish the divisional IEW mission.

As the DS/DS historical records indicate, division G2s and CMOs consistently failed to effectively identify the commanders' requirements. The Observer/Controllers continue to note this trend in the post war BCTP FERs. PIRs developed during the WARFIGHTER CPXs either contained multiple questions and failed to identify a specific target unit or type unit or contained no indication of the latest time the information would be of value (LTIOV) to the commander. Often, the exercise PIRs did not address the actual needs specified by the commander to support his ability to make tactical decisions and were instead developed exclusively by the CMO/G2. Frequently, the CMO neglected to update or modify the PIRs as changes occurred or did not disseminate the PIRs. Also, the requirements manager inadequately developed the SIR sets necessary to focus the collection system. Ultimately, in many instances noted in the FERs, the PIRs failed to direct the collection operations in support of the commander. As one experienced BCTP Observer notes, "Three years of Battle Command Training Program (BCTP) warfighter exercises (WFX) observations reveal that corps and division staffs typically do not apply the doctrinal PIR concept before a WFX."⁶³

Nine of ten BCTP FERs indicated that the G2/CMO failed to develop adequate PIRs to effectively support the commanders' decision making process. One FER contends, "PIR[s] initially

lacked sufficient specificity in time, place, or unit/type . . . there still appeared to be no systematic process for developing PIR[s] in response to the division commander's changing needs, and the PIR often lagged behind the battle."⁶⁴ Similarly, results reported a year later indicated that the shortcoming continued to exist within the CM system. The FER for this divisional WFX stated:

PIR[s] were too general, unfocused, and not linked to operational decisions. . . . PIR development was a hindrance to effective collection. PIR[s] lacked specificity and were not linked to a Named Area of Interest (NAI) or a Decision Point (DP).⁶⁵

Units continued to develop PIRs that were vague, required coverage of vast geographic areas, and did not specify a LTIOV. The inability of the division G2, CMO, and staff to identify collection requirements, as well as to produce clear, complete, and relevant PIRs, remained the single greatest shortcoming in the division CM system.

At least one unit, however, has developed a way to exploit the capabilities of the ASAS to improve their ability to identify intelligence requirements and to develop more effective PIRs. 2AD, one of the first units to field ASAS and to restructure the G2 section into an ACE, uses an ASAS terminal in the division plans section to support the staff wargaming procedure. The ASAS provides a unique capability to process and record the results of the staff's wargame process. The unit's planning staff maneuvers both enemy and friendly units (icons) in the computer; the operational graphics, Decision Support Template, the Collection Plan, and any other graphics can be superimposed onto the wargame area. At specified intervals, the "snapshot" of the wargame is saved and annotated with required comments. At the completion of the wargaming, a detailed record of the entire process can be printed or distributed through the ASAS to the staff and commanders. As decisions and key events are identified, the CMO records and uses them to assist the commander in developing the PIRs. The detailed record of the wargame includes the specific enemy units of interest, specific locations of projected target activity, time of activity, latest time information of value to the commander, and the applicable graphic decision support control

measures. This detailed account of the staff's wargame can then be used by the ACE and collection manager to develop an updated collection plan, SIRs, and SORs. While the ASAS was not specifically designed to support this aspect of the tactical decision making and planning process, it is clearly an excellent use of the technology to assist in solving a serious shortcoming in the CM system.⁶⁶

As recorded in a majority of the FERs, the continued inability of most units to form adequate PIRs further handicaps the evolution of the detailed SIRs required to develop the collection plans. The CM section, given the limited capability of ASAS to process and integrate SIRs into the collection plan, do not adequately complete this phase of the collection management cycle. The unmanageable scope of the SIR development process forces CM sections to focus their efforts on a limited number of requirements, limiting the effectiveness of the available collection systems:

The CMO did not use SIRs effectively to refine requirements or SORs productively to task organic IEW assets. For example, on 3 APR 93, the division's UAVs were not reporting the needed information even though they appeared to be flying in the appropriate area. Examination revealed the UAV operators were unsure of the target NAIs and specific indicators of enemy activity while the CMO was unaware of the type of path the UAV was flying.⁶⁷

The ASAS, with the current CM software package, does not adequately support the development of SIR and SOR sets. Using the ASAS collection management automated functions, this process must still be accomplished using manual input/management.⁶⁸ The requirements manager in the CM section must enter the commander's PIR into the ASAS intelligence collection management terminal. The requirements manager coordinates with analysts from the analysis section to identify indicators, based on the PIRs, relating to each of the intelligence disciplines. He then retrieves the indicators that have been developed by the analysis section. The RM then formulates, with limited automated processing assistance, the specific intelligence requirements

that will address each of the indicators. The CM soldier then develops or coordinates the input of the bank of specific orders or requests corresponding to each of the SIRs.

This process, conducted manually by the CM section of the ACE, continues to be a formidable task to accomplish. During the BCTP exercises, the divisions generally had five to ten PIRs in effect at any given time. Again, with a minimum of two SIRs for each type of intelligence indicator present (IMINT, SIGINT, HUMINT, MASINT) and a like number of SOR taskings, the CMO is managing a set of between 80 and 160 dynamic, individual information requirements. The CM section must also produce the SIRs to support targeting, IRs, requests for information from subordinate units, or taskings from higher headquarters. Inadequate or incomplete development of the SIR sets affects the remainder of the CM planning process; units' execution of this particular aspect of collection management has not improved significantly since DS/DS.⁶⁹

While the inability to produce effective SIRs has been a trend over the past five years, the latest BCTP FER indicates that at least one CM section has been able to successfully complete the process. Using the capability to automatically interface with the analytical element and to input and organize SIR sets within the ASAS CM terminal, the CMO "developed specific information requirements (SIR) and specific orders and requests (SOR) to task organic IEW assets." The FER continues, stating that "... the SORs were tailored to the selected collection system or organization."⁷⁰ CMOs may finally be capable of executing this particular element of the CM process, using the improved data processing capability of the ASAS.

Another critical step in developing the collection plan, developing the Specific Orders and Requests, continues to challenge the ACE during the BCTP exercises. SORs provide the significant link between the commander and the collector; without sound orders and requests, soldiers operating collection systems do not know what they were to report, nor do they understand the reporting criteria. During one recent WARFIGHTER, this resulted in a situation where "the

CMO did not use SIRs effectively to refine requirements or SORs productively to task organic IEW assets . . . the UAV operators were unsure of the target NAIs and specific indicators of enemy activity while the CMO was unaware of the type of path the UAV was flying.”⁷¹ The division CM sections also consistently failed to develop SORs for all collection assets or agencies. They did not adequately integrate the SORs into the collection plan, resulting in collection being conducted at the wrong place and at the wrong time. Frequently, specific orders and requests (SORs) in the collection plan were “too general to guide collection efforts by agencies tasked to respond to them and were not reviewed or updated as necessary.”⁷² The complex nature of this task also caused some divisions to rely on a limited number of assets to perform a bulk of their intelligence collection. One BCTP FER recorded this resulting inefficiency:

The CMO section focused almost exclusively on managing unmanned aerial vehicles (UAV) and long range surveillance detachment (LRSD)/surveillance targeting and reconnaissance (STAR) teams with little attention to other intelligence collection assets. Consequently, the CMO did not use specific information requirements (SIR) or specific orders and requests (SOR) to task organic IEW assets effectively. The CMO’s mechanisms for evaluating reporting and managing requests for intelligence information (RII) also were not apparent.⁷³

Additionally, the BCTP exercise program allows for a limited assessment of intelligence exploitation operations in the CPX training environment. The challenging scope and duration of the CPXs, coupled with the participation of Corps and echelon above corps intelligence organizations, provides a high volume of top-down intelligence flow to divisional units. During WFX CPX training, the divisions maximize the use of their communications and intelligence processing assets; the volume of message traffic fully engages the CM system. The level of simulation generated intelligence flowing from higher to lower headquarters adequately stresses the divisions’ intelligence exploitation capabilities, allowing the BCTP staff to focus on the internal operations of the division. In this environment, the division CMO must plan and synchronize the

exploitation operation if the division is to successfully maximize the intelligence contribution of the higher echelon IEW systems.

The ASAS furnishes the automation and communications links required to conduct exploitation operations; ASAS allows the division CMO and ACE to process tremendous quantities of raw and finished intelligence and to tailor their processing operations to answer the commander's PIRs. CW2 Mark Ingram describes the 1st Cavalry Division's use of ASAS to conduct exploitation operations during the recent division and corps BCTP Warfighter exercises:

With the arrival of ASAS, tactical message processing and analysis in the 1st Cavalry Division are streamlined and faster. We recently completed highly successful division and corps Battle Command Training Program (BCTP) Warfighters. In each exercise, the ASAS-AS (All Source) was an invaluable analytical tool. During the III Corps BCTP, we processed over 29,000 messages in 5 days with ASAS-AS. In our most recent exercise, ASAS-AS processed over 27,000 messages in 52 hours. Within 15 minutes of any event, we could easily provide the commander a graphic representation of the evolving battlefield. Analysts using the ASAS-AS needed only 15 minutes to: Receive and log a message; Correlate the data; Update the All-Source Correlated Data Base (ASCDB); Query the ASCDB; Display the intelligence picture of the battlefield; Produce a graphic intelligence summary (INTSUM).⁷⁴

Certainly, if the division's exploitation operations were focused on answering the commander's PIRs, the ASAS provides the capability to do this function quickly and much more efficiently than with any type of manual system. The ASAS capabilities support the flow of intelligence from Corps and EAC down to the division to support the tactical commander.

Conducting effective and coordinated intelligence acquisition tasking and request management were noted as significant shortcomings in the division IEW operations during DS/DS; this trend continued during the 1991-1994 BCTP Warfighter exercises. Units persisted in having difficulty developing comprehensive, integrated collection plans. In many instances, the collection operations were "not coordinated with the division staff, resulting in missed reporting and failed exploitation opportunities."⁷⁵ The result was a lack of intelligence collection to support the tactical operation; many collection plans noted in the BCTP FERs lacked the minimum basic components

outlined in FM 34-2 and the approved CM TTP. As one 1994 WFX AAR recorded, "Further work needs to be done on suspending collection requirements, closing the loop to insure intelligence acquisition taskings have been accomplished, focusing collection to support the Decision Support Matrix (DSM), and collection to support targeting."⁷⁶ The plans lacked detailed SORs, LTIOV, prioritization of missions, reporting instructions, or the plan's effective date and time. The CMO often failed to distribute the plan to the entire staff or affected units.

Units perpetuated this nonperformance by consistently failing to use the Collection Emphasis Message, which includes all required information to support collection tasking, as the vehicle for issuing collection tasking orders. This message, if properly utilized, provided a template for the CMO to task and request collection. The BCTP FERs indicate that when units failed to use the CEM, along with the IEW synchronization matrix, the collection plans tended to be incomplete and insufficient:

The division used the CEM to direct intelligence acquisition taskings and RII to higher headquarters. The initial CEM was cumbersome and difficult to understand. SORs often were poorly written and specific intelligence function priorities (IMINT, SIGINT, etc.) were inadequate . . . Neither the ASIS chief nor all source technicians were overtly involved in developing the collection message. ASIS analysts must express their requirements to the CMO and provide specific SORs to assist in answering the PIR[s]. The CMO should take this input and develop and update the division's collection plan.⁷⁷

Some procedures developed during the Gulf War to improve IEW collection and synchronization operations have been adopted by divisional CM sections to support current operations. The most important of these wartime developments being used by current division G2s is the IEW synchronization matrix, which ties intelligence collection closely to the operational maneuver and has been established as a useful and effective CM tool. The planning and operational software programs and automated capability reside in the ASAS CM operator's terminal, greatly enhancing the tasking and requesting synchronization operations of the division CMO. When this capability was used, CM operations proved to be effective, "The CMO

produced a daily graphic collection plan . . . when published with the CEM, it was an effective means of disseminating the commander's intent for collection." ⁷⁸ When divisions failed to use the tools available, or to integrate the entire ACE staff into the process, collection planning was less effective:

The CMO published a daily CEM as a standard vehicle to direct intelligence acquisition tasks . . . [however], neither the ASIS chief nor all source technicians were overtly involved in developing SIRs, SORs, or the CEM. . . . The G2 did not produce an intelligence synchronization matrix (ISM). ⁷⁹

While the divisions continue to struggle with many aspects of collection management, the coordination between the CM section/G2 and the MI Battalion appears to have improved. Most FERs cited the communication and coordination between these elements as strengths in the IEW operations. While the CPXs cannot perfectly replicate wartime conditions, by replicating the problems caused by the distance between units or the continuous movement of headquarters, the AAR results indicated that G2s and MI Battalion commanders had established procedures to assure complete integration of all IEW assets into the collection plan.

Many units have collocated an element of the MI Battalion S3 section or the MI Battalion Headquarters with the ACE; this facilitates continuous coordination between elements and improves the MI battalion's involvement with planning and synchronizing the collection effort, thus providing better intelligence support to the commander. This collocation allows the MI battalion commander to perform the duties of the asset manager more efficiently by facilitating direct coordination with the CMO, G2, G3, and commander. Typical BCTP results record:

Coordination for employing collectors and tracking their operational status was effective. Having the MI Battalion LNO work out of the ACE . . . was extremely effective for facilitating the tight coordination. . . . The division properly managed and positioned EW assets on the battlefield to support the division's operations. ⁸⁰

Having the TCAE function, as well as the personnel, integrated into the ACE further facilitates efficient mission and asset management of the divisions collection systems. The soldiers

responsible for developing the mission taskings and those who conduct the analysis of collected information are located side by side; they can easily coordinate collection requirements and assist the CMO in evaluating the effectiveness of the collection by evaluating the incoming information. A "shared situation awareness" exists within the ACE; the G2 has a better overall picture of the organic intelligence collection and analysis operations of the division.

Another aspect of developing the collection plan, managing subordinate unit Requests for Intelligence Information, has begun to show improvement over the last year. FERs for 1991-1994 indicate that units were neither managing the division RII system effectively, nor were CMOs addressing subordinate unit intelligence requirements. Typical earlier BCTP findings indicate:

The lack of a centralized RII management effort made tracking and satisfaction of RII difficult. . . . Throughout the WFX, the CMO was not always aware of MSC and separate battalion PIRs and IRs. . . . The G2's system for maintaining an audit trail for RIIs as required by FM 34-2 was not apparent.⁸¹

RII management began to improve during the 1995 BCTP WFXs. Units demonstrated a better ability to manage requests from subordinate units and to properly monitor the status of their requests to the higher headquarters. FERs from the most recent WARFIGHTER exercises indicate that CMOs had established "effective system[s] for managing an audit trail of RIIs" and "almost always were aware of subordinate brigade and separate battalion PIRs."⁸² The division CMOs and G2s have refined in their ability to factor subordinate unit requirements into the division collection plan.

The ACE structure, supported by ASAS, has contributed to this progress. ASAS provides an automated means of receiving, logging, processing, answering, and replying to requests for information from subordinate units. The communication and data processing capability of ASAS compliments the integration of the CM and analytical sections within the ACE. Requests for information are more quickly and efficiently processed, intelligence data bases queried to find the

intelligence or validated requests tasked for collection, and replies automatically sent more immediately than with a manual system.⁸³

BCTP FERs prepared since DS/DS also record improvement in intelligence dissemination operations. Although the intelligence dissemination system was not as heavily taxed during these exercises as it was in wartime, units continued to develop more efficient means to quickly pass large quantities of intelligence to maneuver commanders. This aspect of collection management continued to receive a great deal of attention from commanders and G2s during the immediate post war period.

The difficulties experienced during the Gulf War caused division G2s to reevaluate the importance of maintaining efficient dissemination operations as part of a coordinated CM&D effort. Additionally, units found better ways to exploit existing communications systems, such as the Maneuver Control System, to disseminate intelligence. BCTP FERs prepared during 1991-1994 indicate a marked improvement in division dissemination operations. A majority of the reports provided a positive assessment of dissemination operations:

The dissemination section had dedicated personnel responsible for reporting and receiving intelligence information. The section maximized the use of MSE facsimile and MCS to ensure information was provided to all consumers. The section had an effective audit trail ensuring all MSCs received INTSUMs and other G2 reports.⁸⁴

While the peacetime training exercises do not generate the same quantity and variety of intelligence information to disseminate, particularly in the volume of imagery and "hard copy" products, the system improved during the immediate post DS/DS period to better support maneuver commanders. While the 1994 edition of FM 34-2 recognizes the need for dissemination as a critical function of the CM process, the ACE structure does not adequately support this requirement. ASAS provides the means to disseminate electronic intelligence products such as reports and data bases, however, the capability to disseminate "hard copy" intelligence products has not been improved. These intelligence products, such as terrain overlays, imagery, and the

myriad non-electronic products are vital elements of the intelligence system. The ability to disseminate bulk intelligence becomes even more critical when a division is working with a non-ASAS equipped unit. This problem would be especially acute working in a joint and coalition environment; ad hoc courier teams would again have to be formed to accomplish the dissemination mission.

Additionally, the CMO must ensure that an over reliance on the automated systems does not prevent input of intelligence from non-ASAS channels. Since the subordinate units in the division do not have ASAS connectivity a system must be established to handle all types of intelligence traffic. This shortcoming has been noted in many BCTP FERs:

No system was in place to track dissemination of products within the ACE. An in-box was located I the collection management van, but it was not used. Consequently, spot reports, reports of chemical activity, EPW reports and similar "hard copy" products often were misplaced and not integrated into the ASIS analysis."⁸⁵

Likewise, ASAS only supports dissemination from EAC and corps to division. Since ASAS has not been fielded to brigade level, and is not projected to be available to the brigade S2s until after the year 2000, there are still many challenges in disseminating data base intelligence to the division's MSCs.⁸⁶ While the Maneuver Control System (MCS) provides a rudimentary automation channel between the division and brigade headquarters it is not capable of handling the vast amounts of data that ASAS can supply. Units are still developing local networks and liaison officers to facilitate intelligence dissemination, which reduce the overall effectiveness of the IEW system.

In conjunction with the disseminating the collected intelligence, the CM section must thoroughly evaluate the incoming intelligence information: to assure that collection is synchronized with the tactical operations, to correlate reports to the identified requirements, and to provide feedback to the collectors on the effectiveness of their collection. During DS/DS operations and

BCTP WARFIGHTER training exercises this task posed a serious challenge to the division CM section.

Units consistently do not establish procedures to determine whether PIRs have been answered. While this may seem like an obvious task, given the critical nature of the PIR and the inherent responsibility to ensure the commander receives the necessary intelligence, this function consistently goes undone.

Units continued to struggle with evaluating intelligence during the 1991-1994 BCTP WARFIGHTER exercises. Again, the quantity of incoming message traffic overwhelmed the CM system. One MI staff officer, assessing the processing capability of the division G2 to process incoming intelligence, noted, "The quantity of information coming into the CM&D quickly overwhelms the recording process. The CM&D averages 50 reports per hour which must be manually logged into the system."⁸⁷ Additionally, the lack of a centralized RII management effort made tracking and satisfaction of RII difficult. No manual system proved adequate to support collection evaluation. Failure to adequately evaluate collection hindered the CMOs ability to perform the next critical CM task, updating the collection plan in reaction to the changing battlefield conditions.

Collection managers continue to struggle with this task even in the ASAS equipped ACE. While the ASAS provides a greater capability to screen incoming intelligence information, no procedures have been established to track the incoming information flow against the outstanding SIRs and PIRs. Every FER prepared in 1995 for a heavy division cites this as a shortcoming in the IEW system:

Observations throughout the WFX suggest uncertainty with regard to if and when PIR had been answered. The collection management officer (CMO) did not aggressively track the status of or maintain an audit trail on PIR. . . . The determination of whether a PIR had been satisfied largely appeared to be a subjective call by the G2 after consultation with the command group.⁸⁸

This is an area where the automated data processing capabilities of ASAS could be exploited to solve a basic CM problem. The Requirements Manager, by properly developing the SOR sets, could use the capabilities of the ASAS to automatically sort incoming intelligence by exploiting the ASAS significant automatic features.⁸⁹ The CMO can set ASAS alarms to indicate when intelligence had been received in response to a specific tasking requirement. By screening only the incoming intelligence data relating to these SIRs, the CMO, in conjunction with the ASIS chief analyst, could definitively answer when and if a particular PIR had been satisfied. This allows the CMO to retask assets as requirements are answered and additional requirements are identified.

During subsequent BCTP CPXs units continued to struggle with adjusting the collection plan as the tactical operation continued and operational conditions changed. Although some units were able to modify the basic PIRs as conditions warranted, they were neither able to complete the entire hasty CM planning process nor able to develop SIR/SOR sets and tasking orders to shift the collection effort. Intelligence collection lagged behind operational requirements, resulting in lack of support to the commander:

PIR must be dynamic and the G2 has an inherent responsibility to determine when they are answered and when they need to be changed; however, this many [five changes to the PIR in 8.5 hours] degraded the collection system, which must react to each change in the PIR. When the PIR were modified, the CMO distributed them to the MSCs. The PIR were well disseminated, yet the SIR/SOR or specific taskings were not modified. The R&S/collection efforts were aimed at outdated PIR, which may not be supportive of the division commander. The planning staff developed several contingency plans (CONPLANS) during the WFX. None contained an intelligence concept or generated a new collection plan.⁹⁰

The CM section must be capable of dynamically executing the intelligence collection management process as conditions on the battlefield and the commander's requirements for intelligence change. The ACE organization, complimented by the data processing and communications capabilities of ASAS, has improved the divisions' capability to perform the collection management and

dissemination mission for the commander and G2. Now that the system is in place in most of the Army's divisions, it is critical that units continue to train and expand on their use of ASAS in the ACE's daily intelligence operations. G2s must also develop methods to overcome the shortcoming in the CM&D system, using the current doctrine as a foundation, and building on the integrated structure of the ACE and the tremendous capabilities of the ASAS.

Section V--Conclusions and Recommendations

Weapons and tactics have expanded the battlefield well beyond the range of human eyes, ears and the electronic sensors owned by battalions, brigades, and regiments. Maneuver warfare absolutely depends on accurate and timely intelligence about entities and events that are no longer easily nor quickly sensed from the front lines: events at the full depth of the theater of operations and often beyond the reach of sensors under the direct control of combat commanders.⁹¹

The Army recognized Operation DESERT SHIELD/DESERT STORM as a resounding victory, and as a successful test of our tactics, doctrine, and equipment development. This, however, did not lead to a sense of complacency. Following the war, the Army's leaders critically examined all aspects of its operation to identify systems and doctrine that did not perform adequately. This examination identified those areas that required examination, testing, and development to meet the requirements of future conflicts. Nowhere was this process more meticulous and more comprehensive than in the intelligence arena.

The senior leaders of the Military Intelligence Branch, with the direction and guidance of MG John Stewart, conducted an aggressive and critical look at the performance and effectiveness of tactical IEW operations in support of the tactical commanders. They examined intelligence doctrine, TTP, equipment, training, and personnel structures to determine not only what elements of the tactical IEW system were effective, but also which ones required modification and improvement. The results of this comprehensive process were the foundation for the MI Corps post war modernization efforts.

One area that post war reports consistently recognized as a deficiency in the tactical IEW field was Collection Management and Dissemination Operations. G2s and intelligence officers at all levels, from Army to Brigade, cited deficiencies in CM&D capabilities as one of the most critical shortcomings in the tactical IEW system. Concrete steps were developed and implemented to improve the tactical army's ability to collect and deliver battlefield intelligence to the combat maneuver commanders.

In an effort to exploit emerging capabilities in automated data processing and communications capabilities, while dealing with personnel cutbacks and diminishing resources, the Army developed and fielded the Analytical Control Element. The ACE, the core organization within the division G2 section, is organized around the capabilities of the All Source Analysis System. This new structure, still being adopted by many of the Army's divisions, has dramatically altered the way division G2s conduct IEW operations; the technology available today has far surpassed any capabilities available to the division tactical intelligence officers during DS/DS.

The combination of the integrated ACE structure and the powerful ASAS has improved many aspects of the CM&D process. It refined internal and external communications capabilities of the division G2, enabling seamless communications with corps and EAC intelligence organizations. The automated ACE allows improved tasking and coordination for management of the division's organic collection assets and has strengthened coordination with MI battalion and integration of all sources of intelligence. The ACE provides a greater capability to disseminate intelligence reports, databases, and messages. The superior information processing capability has enhanced the CMO's ability to communicate requirements and to evaluate collection.

While the ACE/ASAS combination has allowed modernization of many aspects of the CM process, it has neglected some of the critical elements of the CM process. Post-war reports indicate that requirements development continues to be the most critical shortcoming in the IEW system. Division G2s and CMOs continue to struggle with the challenge of establishing an efficient system to manage the PIR--SIR--SOR linkage; the complexity of this process during fast paced, constantly changing operations quickly outpaces current TTP and technological capabilities. Lack of an effective means for RII tracking ability also continues to challenge the capabilities of the division CMO.

In addition, deficiencies identified in the ACE operations and structure have had a negative impact on the effectiveness of CM&D operations in the division. The most critical shortcoming is the identified collective training deficiency, noted in most of the 1991-1995 BCTP FERs; the transition from the DTOCSE into the ACE, coupled with the fielding of ASAS, places an extreme training burden on the division G2 sections. Continuing shortages of senior noncommissioned officers and warrant officers, as well as the deficient personnel structure in the ACE, exacerbate these problems. Additionally, all divisions experience the continued requirement for manual back-up and standard map board plotting operations. Since none of the remaining elements of the Army Command and Control System are in the advanced fielding stages as ASAS, the ACE must conduct a great deal of manual operations in order to interface with the other staff sections and subordinate units in the division.⁹²

The primary aspect of IEW and Collection Management Operations that intelligence officers and NCOs identify as being most effective is the intelligence collection management doctrine. In both post-war after action reports and subsequent BCTP exercise evaluations, G2s, CMOs, and ASAS operators are uniformly positive in their assessments of IEW and CM doctrine. One experienced BCTP observer controller, commenting on the utility of current doctrine in MI Magazine, recently wrote:

The solution to this problem is not complicated. MI doctrine has charted the course and identified the necessary techniques. G2s and S2s must apply the doctrine by first linking each PIR to its related decision point (DP). Then they provide the answer to the decision maker by the time he specifies (latest time information is of value--LTIOV).⁹³

Gulf War after action reviews and archive records reflect this sentiment; division G2s and senior intelligence officers consistently provided positive comments on the utility and effectiveness of the established TTPs for executing intelligence CM operations. However, while they have a positive assessment of the doctrine, they are critical of the tools and personnel structure in place to conduct

these operations. Their criticisms were the driving force behind the development of the ACE and ASAS.

Intelligence collection operations provided adequate combat intelligence support to the Gulf war commanders. While the basic procedures developed to gather and exploit the information were effective, the information and data collected by satellite and electronic sensors poured into the division G2s, overwhelming their collection management and intelligence processing capabilities:

These automated sensors and sensor data processing facilities and centers produce large volumes of time-sensitive, perishable data and information that cannot be processed by manual or semi-automatic means and still meet the commander's information needs and timeliness criteria. The inability of the intelligence system to develop and disseminate timely, accurate, high-value target development and dynamic situation intelligence on future battlefields constitutes a critical deficiency.⁹⁴

To provide the division G2 with the capability to conduct effective CM&D operations, the ASAS was developed, tested, and fielded. The ASAS supports the Collection Management Process through the Intelligence Collection Management subsystem and through its interaction with the other analytical subsystems. The ASAS workstation in the collection management section provides the capability to do requirements management and mission/asset management. Using this workstation, the operator can manage a database of collection requirements, track resource capabilities, and maintain status and collection coverage range of national, theater, and organic assets. The CM operator communicates data, taskings, and requests in correct message formats to all internal and external addresses programmed into the system. PIR, complete with indicators and SOR, as well as NAIs, can all be entered into ASAS at the ICM workstation.⁹⁵ The ASAS is a powerful tool, providing the G2 with a much greater capability than was available during DS/DS.

While ASAS has dramatically improved the CMO's ability to conduct the tactical mission, there are segments of the equipment capabilities that can be improved. The ASAS system was designed primarily as an all-source analysis and fusion tool. It was not designed to support collection management operations at the same level of efficiency as intelligence analysis.

According to the ASAS development documents, the Block I version of ASAS being fielded in the units today is designed to perform only "Initial Intelligence Collection Management [including] Requirements, Mission, and Asset Management Tools, PIR/IR Development, Automated Collection Strategy, and Collection Evaluation. The Block II-III ASAS, to be fielded in 1998, will include enhanced CM as well as Dynamic Retasking capabilities." ⁹⁶ As the automation capability improves with each ASAS upgrade, the remaining challenges for the division G2 will include manning the ACE/ASAS to perform effectively, and training soldiers to maximize the effectiveness of this new equipment.

Manning shortfalls degraded the division CM&D operations during the war and continue to pose a critical challenge in the heavy division ACE. Division CM sections lack the skilled noncommissioned and warrant officer intelligence soldiers necessary to effectively execute the mission. Both the 1st Cavalry Division and 24th Infantry Divisions remain well below authorized strength in critical enlisted signals and intelligence analyst soldiers and noncommissioned officers in their ACEs. Understrength manning is not new to the G2 section, however, the absolute necessity to man every terminal in the ACE means that shorthanded operations cause a much greater degree of degradation than ever before. The ACE/ASAS structure was designed to have every terminal manned with a "fully trained operator." ⁹⁷ The level of manning allocated to operate the ACE in current organizational documents does not adequately support CM operations:

The grade structure . . . does not support timely, accurate intelligence production and dissemination. The soldiers lack the experience and training. Currently, 65% of the soldiers . . . have less than five years of military experience by grade alone. They do not have the data base of knowledge and experience to work through complicated intelligence problems. ⁹⁸

FERs for BCTP Warfighter CPXs 95-7, 95-5, and 95-4 contain observations concerning shortfalls in terms of number and rank of personnel in the ACE. This is clearly a common problem, even within the contingency corp's two heavy divisions, which are most likely to be

deployed and which require the highest level of readiness. With a system such as ASAS in an already lean structure like the ACE, these personal shortfalls have an exponentially negative effect. One terminal unmanned means one intelligence function is not being performed or is being accomplished inadequately by an overworked operator. In the CM&D sections, with only nine soldiers assigned, the loss of even one operator/analyst severely degrades operational efficiency.

Additionally, the structure of the G2 must be expanded to allow for liaison requirements. While ASAS provides a greater automated communications and dissemination capability, a demonstrated need for direct, continuous, and "face to face" contact between headquarters exists during combat operations. Soldiers need to be specifically identified or trained to conduct liaison duties effectively. The ACE structure must have sufficient personnel to allow for a number of the assigned soldiers to be away from the ACE. The ACE must contain a minimum level of trained personnel, not tied to a computer terminal, to conduct non-automated operations in the G2. This will allow G2s to develop and test procedures that they will use in combat, preventing the need for the ad hoc arrangements used during DS/DS.

Finally, additional training emphasis must be placed on Collection Management operations during garrison and peacetime training exercises. Because of the limitations placed on their organic collection assets prior to ground combat operations during the Gulf War, G2s neglected collection management training and systems development. CM soldiers were put to work doing a variety of other tasks and were not able to establish an effective system to manage the division CM operations once the war started. This problem can be prevented by establishing an aggressive training program which fully taxes the ACE and ASAS collection management system during daily intelligence operations. Techniques suggested by the BCTP observers include:

The G2 and CMO review and implement the doctrinal procedures found in FM 34-2 to improve the division's collection management system . . . [units should] practice developing robust CEMs including fully developed lists of SORs by intelligence discipline. Continue to include as a matter of course subordinate commanders' PIR

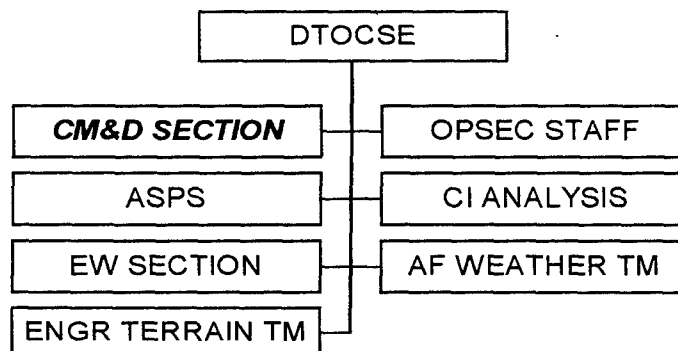
and IR into the division's overall collection strategy. Integrate ASIS leaders and analysts in developing sets of SIRs.⁹⁹

The automation capabilities of the ASAS do not reduce the requirements for well trained soldiers and leaders. ASAS new equipment training takes eight weeks to complete. Of this eight week period, four and one half weeks are individual equipment training, while the remaining three and one half weeks are collective training. This eight week schedule is based on the unit having no other training/operational requirements and having 100% personnel availability; this is a tremendous challenge for any unit with today's operational requirements and "real world" missions. Once initial skills are developed, the ASAS must be treated as a "crew served weapon," with continuous training and testing to ensure operator proficiency. Ultimately, well-trained soldiers will make the ACE structure work effectively and will master the capabilities provided by the ASAS.

Collection Management and Dissemination doctrine provides the solid foundation for continuing improvements in division IEW operations; the ACE/ASAS structure contributes the technical capability. To advance intelligence operations to meet emerging challenges, the Army's Division G2s must focus on the basic fundamentals of training soldiers to execute sound doctrine, maximizing the power of automation to work more efficiently, and maintaining the efficiency and integration of the ACE operations. These actions will ensure continuing improvements in Collection Management, preparing the Army for the future and moving the intelligence operations beyond the legacy of Desert Storm.

Appendix A: Division Tactical Operations Center Support Element (DTOCSE) Organization
(TO&E 87004L-CTH, Commander's TO&E Handbook: Division Headquarters and Headquarters
Company, Heavy Division)

DIVISION TACTICAL OPERATIONS
SUPPORT ELEMENT

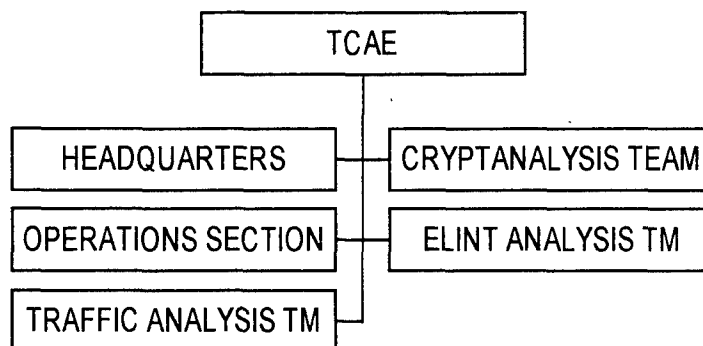


DTOCSE Collection Management & Dissemination Section Organization:

<u>Position</u>	<u>Rank/MOS</u>	<u>Authorization</u>
Collection Manager	CPT/35G	1
Imagery Officer	CPT/35C	1
Traffic Analysis Tech	CW3/352C	1
Imagery Analyst	SFC/96D	1
ELINT Analyst	SFC/98J	1
Intelligence Analyst	SFC/96B	1
Intelligence Analyst	SGT/96B	1
Clerk/Typist	SPC/71L	2
Intelligence Analyst	SPC/96B	2
Intelligence Analyst	PFC/96B	1
Total Personnel		12

Appendix B: Technical Control and Analysis Element (TCAE) Organization (TO&E 34285L-CTH, Commander's TO&E Handbook: Military Intelligence Battalion, Heavy Division)

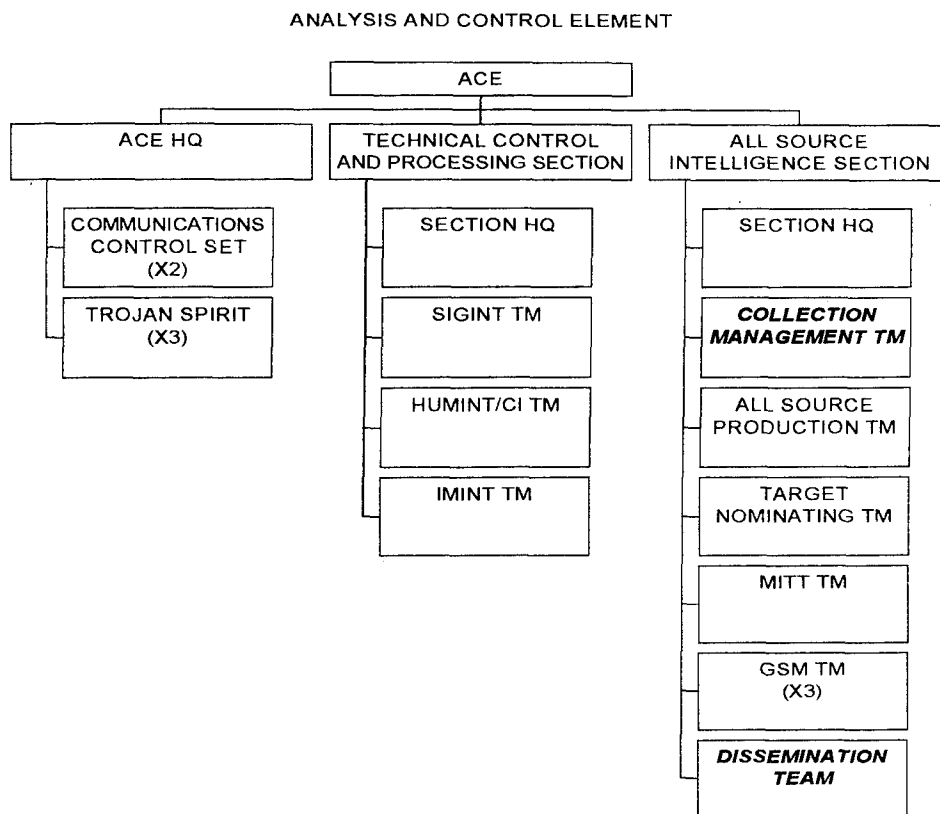
TECHNICAL CONTROL AND ANALYSIS ELEMENT



Technical Control and Analysis Element (TCAE) Section Organization:

<u>Position</u>	<u>Rank/MOS</u>	<u>Authorization</u>
SIGINT EW Officer/OIC	CPT/35G	1
Traffic Analyst Tech	CW4/352C	1
Traffic Analyst Tech	CW3/352C	1
Voice Intercept Tech	CW3/352G	1
Non-comm Intcpt Tech	CW3/352J	1
TCAE NCOIC	MSG/98Z	1
MSN Management Sup.	SFC/98C	1
Intelligence Analyst	SFC/96B	1
SIGINT Analyst	SSG/98C	4
ELINT Analyst	SSG/98J	2
SIGINT Analyst	SGT/98C	6
Non-comm Intcpt Analyst	SGT/98H	1
Intelligence Analyst	SGT/96B	6
ELINT Analyst	SGT/98J	4
Voice Analyst	SGT/98G	2
SIGINT Analyst	SPC/98C	5
ELINT Analyst	SPC/98J	1
Voice Analyst	SPC/98G	1
Intelligence Analyst	SPC/96B	1
Clerk/Typist	SPC/71L	3
SIGINT Analyst	PFC/98C	4
ELINT Analyst	PFC/98J	1
Intelligence Analyst	PFC/96B	1
Total Personnel		50

Appendix C: Analysis and Control Element (ACE) Organization (TO&E 34395AO,
Commander's TO&E Handbook: Military Intelligence Battalion, Heavy Division)



ACE Collection Management Team Organization:

<u>Position</u>	<u>Rank/MOS</u>	<u>Authorization</u>
SIGINT/EW Officer	CPT/35G	1
All Source Intel Tech	CW2/350B	1
Senior GSS SGT	SFC/96R	1
NC Supervisor	SFC/98J	1
Intelligence Analyst	SSG/96B	1
Imagery Analyst	SSG/96D	1
Total Personnel		6

ACE Dissemination Team Organization:

<u>Position</u>	<u>Rank/MOS</u>	<u>Authorization</u>
SIGINT Analyst Tech	CW2/352C	1
Intelligence Analyst	SSG/96B	1
Intelligence Analyst	SGT/96B	1
Total Personnel		3

Appendix C (cont.): Analysis and Control Element (ACE) Organization (TO&E 34395AO, Commander's TO&E Handbook: Military Intelligence Battalion, Heavy Division)

Most divisions have reorganized the ACE into a more functional structure; with an analysis section, collection management and dissemination section, and a headquarters element. The reorganization brings the structure in line with current doctrinal procedures and operational requirements.

Appendix D: Sample Collection Plan Format

CLASSIFICATION

UNIT: _____		COLLECTION PLAN						PERIOD COVERED: FROM _____ TO _____														
PRIORITY INTELLIGENCE REQUIREMENTS AND INFORMATION REQUIREMENTS	INDICATORS (ANALYSIS OF INTELLIGENCE REQUIREMENTS)	AVENUE OF APPROACH		COORDINATES: FROM _____ TO _____		AGENCIES TO BE EMPLOYED																
				TO _____																		
		MOBILITY CORRIDOR NO _____		FROM _____ TO _____																		
PIR 1. Where and in what strength are threat forces?	a. Areas of enemy activity. b. Discovery of weapons and how trails within the AO. c. Introduction of new tactics by insurgents.	NAMED AREA OF INTEREST	DISTANCE	TIME		SPECIFIC INFORMATION OR REQUESTS	OBSERVED TIME	TASOGC	ISE	SOG J2	GP MI DET	1 BN MI DET	ODA 934	ODA 932	ODA 931	ODA 930	4TH POG	96TH CA	HN Police	HN 1st BDE	HN 2d BDE	
		NAI 2	50 km	NA	D	+5	Report increased border crossing vic TO6020, TQ3218 and TQ0613		X	X	(X)	(X)	X	(X)	(X)	X	X	X	X	X	(X)	
		NAI 1	10 km	NA	D	+5	Report discovery of caches containing weapons.		X	X			(X)	(X)	(X)	X	X	X	X	X	(X)	(X)
		NAI 1	10 km	NA	D	+5	Report insurgent changes in recruitment.		X	X	X	X	(X)	(X)	(X)	(X)	X	X	X	(X)	(X)	(X)
		AVENUE OF APPROACH		COORDINATES: FROM _____ TO _____		AGENCIES TO BE EMPLOYED																
				TO _____																		
		MOBILITY CORRIDOR NO _____		FROM _____ TO _____																		
		NAMED AREA OF INTEREST	DISTANCE	TIME		SPECIFIC INFORMATION OR REQUEST	OBSERVED TIME															
		NAI		NET	NLT																	
		NAI																				
		NAI																				

Briefly state specific information to be sought that will substantiate each indication.

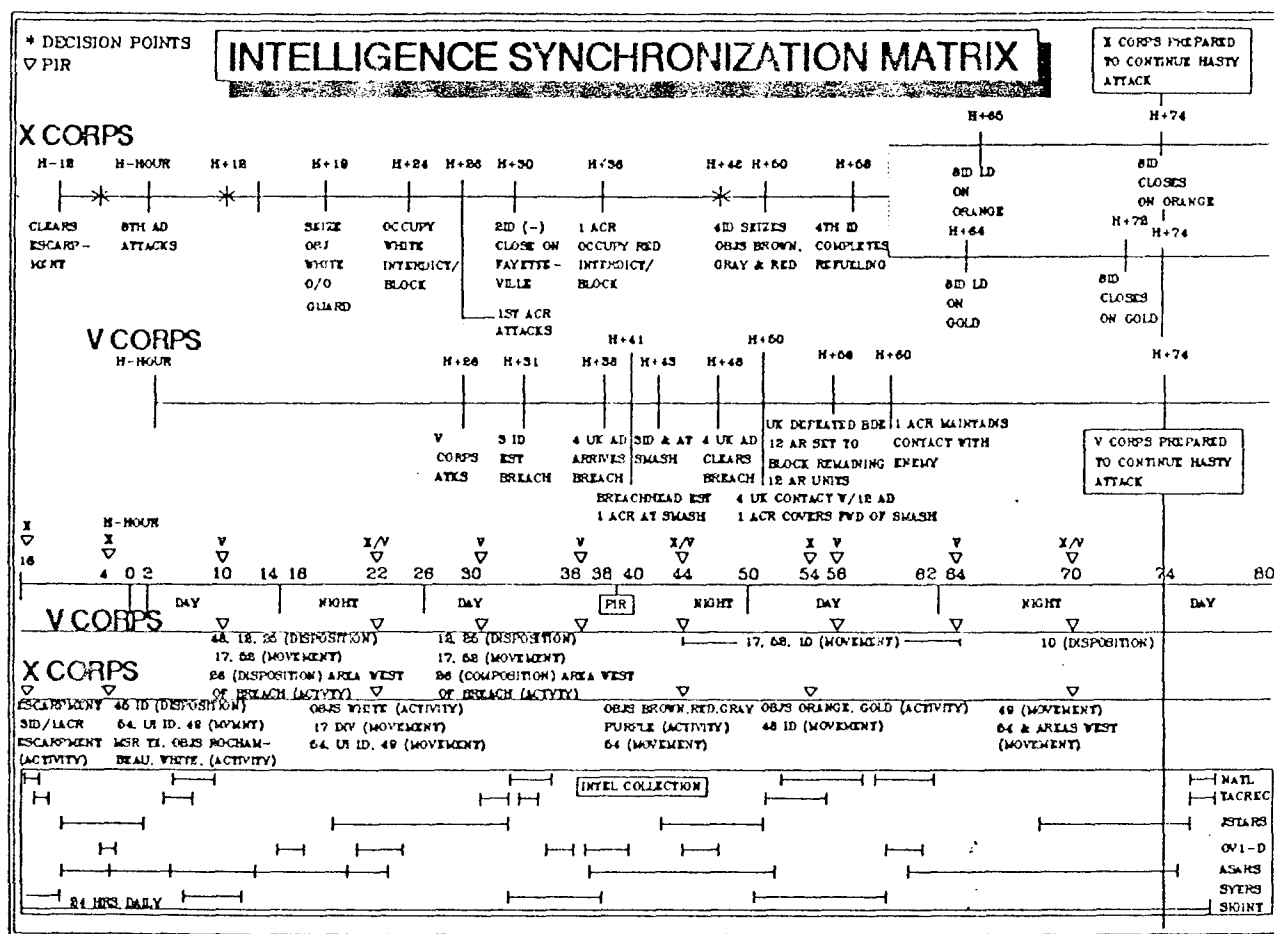
Specific information needs become the basis for orders and requests to collect information.

(List all available units that can be employed in the collection of required information.)

Place an "X" under each unit that can acquire the specific information sought. Circle the "X" under the unit actually assigned collection action.

CLASSIFICATION

Appendix E: Sample IEW Synchronization Matrix



Appendix F: Glossary of Acronyms

AARs	After Action Reviews
ACE	Analysis Control Element
ASAS	All Source Analysis System
ASIS	All Source Intelligence Section
BCTP	Battle Command Training Program
BOS	Battlefield Operating System
CM	Collection Manager
CMO	Collection Management Officer
COMINT	Communications Intelligence
DTOCSE	Division Tactical Operations Center Support Element
ELINT	Electronic Intelligence
FERs	Final Exercise Reports
G2	Assistant Chief of Staff, G2 (Intelligence)
HUMINT	Human Intelligence
IEW	Intelligence and Electronic Warfare
IMINT	Imagery Intelligence
IRs	Information Requirements
LTIOV	Latest Time Information is of Value
MI	Military Intelligence
MM	Mission Management
NAI	Named Area of Interest
PIRs	Priority Intelligence Requirements
RII	Request for Intelligence Information
RM	Requirements Manager
SIRs	Specific Information Requirements
SORs	Specific Orders and Requests
TCAE	Technical Control and Analysis Element

ENDNOTES

1. Sun Tzu, Art of War, (Boulder, 1994) , p. 231.
2. US Army, FM 100-5, Operations, (Washington, DC: Department of the Army, 1993) , p. 2-12.
3. Allen D. Campen, ed., The First Information War, (Fairfax, VA, 1992) , p.12.
4. US Army, Operation DESERT SHIELD/DESERT STORM, Center for Army Lessons Learned Observation Worksheets, (Ft Leavenworth: Historical Archives, US Army Combined Arms Command, March -- April 1991) , p. ARC 24-003. Various records from the CALL Archives were used. The majority of the intelligence related information was contained in the notes from the 3d Army Intelligence AAR, conducted in March/April 1991. Additional information was located in the unit histories compiled for the official Army record.
5. Operation DESERT SHIELD/DESERT STORM, Center for Army Lessons Learned Observation Worksheets, p. ARC 26-004.
6. Richard J. Quirk III, Intelligence for the Division: A G2's Perspective, (Carlisle Barracks: US Army War College, 1992) , p. 211. COL Quirk was the G2 for the 24th Infantry Division during DS/DS. This extremely detailed study of his division's intelligence operations during the war contains many lessons learned for future G2s/intelligence staff officers.
7. John F. Stewart, "DESERT STORM: A 3d U.S. Army Perspective." Military Intelligence 17, no.4, (1994) , p. 23. MG(R) John Stewart was the 3rd Army G2 during the Gulf War. Prior to that, he had served as the XVIII Airborne Corps G2 during OPERATION JUST CAUSE, G2 of the 82nd Airborne Division during OPERATION URGENT FURY, and as a tactical intelligence officer in Vietnam. After DESERT STORM, he went on to become the Commanding General of the US Army Intelligence Center and School. MG Stewart was the major impetus behind development of ASAS; he saw the need to provide timely and accurate intelligence from national systems to the front line commanders.
8. US Army, FM 34-25-3, All-Source Analysis System (ASAS) and the Analysis and Control Element (ACE) (Final Draft), (Ft Huachuca, AZ: US Army Intelligence Center and School, May 1995) , p. 1-9. The myriad intelligence lessons learned from the DS/DS performance reviews, as well as from on-going BCTP evaluations drove the development of the Analysis Control Element. The mission of the ACE is to perform collection management; produce all-source intelligence; provide IEW technical control; and disseminate intelligence and targeting data. The ACE centralizes analysis and collection management under the operational control of the G2. (34-25-3, p 2-1) The ACE structure is designed around the All Source Analysis System. ASAS is the Army's intelligence component of the Army Command and Control System. ASAS, or a similar automated system, is fielded in all active divisions. The system is built around software capabilities; it is not tied to specific hardware and is designed to operate on a myriad processors. ASAS provides significantly improved capabilities for data analysis and communication. 34-25-3, page 1-9--1-10 states ASAS enables a trained operator to:

Quickly correlates information from multiple sources.

Provide timely situation updates to the common picture of the battlefield.

Compare new information to reports already in the database.
Rapidly identify and nominate potential targets.
Develop and release time-sensitive intelligence reports.

ASAS provides the operator:

Automated tools that assist both all-source and single source analysts.
A dynamic, rapidly correlated, multi-source, multi-disciplined, rational database linked to an organic communications center.
Capability to develop message alarms that automatically notify the operator when critical time-sensitive information arrives.
Database query capabilities that use criteria such as time, geographic area, type of activity, type of equipment, or specific call signs or frequencies.
Automated card files, read files, message journals, order of battle workbooks, and reference materials.

Imbedded communications software facilitates:

Downward flow of taskings, intelligence, and technical data to subordinate IEW assets.
Upward flow of combat information, intelligence, and requests for information to higher echelons.
Lateral flow of intelligence and coordinating instructions.
Recording, sorting, filing, and monitoring of inbound and outbound message traffic.

9. US Army, FM 34-2, Collection Management and Synchronization Planning, (Washington, DC: Department of the Army, 1994) , p. 1-1.

10. FM 34-2, pp. 1-1-2-5. Also see 34-2, 1990. A comparison of the 1990 and 1994 doctrinal manuals shows no change in the basic three CM functions or in the six steps of the CM process.

11. Irving Heymont, Combat Intelligence in Modern Warfare, (Harrisburg, PA, 1960) , p. 6.

12. Heymont, p. 7.

13. FM 34-2, p. 1-2.

14. US Army, FM 101-5-1, Operational Terms and Graphics (Final Draft) , (Leavenworth: US Army Command and General Staff College, January 1994) , p. 1-184. Also see US Army, FM 34-8, Combat Commander's Handbook on Intelligence, (Washington, DC: Department of the Army, 1994) , p. A-1. 101-5-1 defines PIR as: Those intelligence requirements for a which a commander has an anticipated and stated priority in his task of planning and decision making. 34-8 states that PIR should be precise, limited in scope, and tied to a specific decision. An example of a good PIR is; Will the enemy defend OBJECTIVE JOHN using a forward slope defense?/latest time information of value 210900Z/supports DP 1.

15. US Army, Collection Management Tactics Techniques and Procedures (TTP) , (Ft Huachuca: US Army Intelligence Center and School, June 1994) , p. 7. To develop SIRs, the CMO retrieves intelligence indicators that have been developed by the analysis section. Indicators are positive or negative evidence of threat activity, such as specific actions or types of equipment that identify

threat actions. The CMO combines these indicators with graphic control measures (Named Area of Interest, Target Area of Interest, Engagement Area) and specific times to create a SIR. A sample SIR from the guide:

SIR 1--Ground reconnaissance activity, especially presence or movement of BMP-2, BRDM-2, BTR-60, and BTR-80 vicinity NAI 13, 14, 15, 16, 17, and EA Saber (NAI 18 & 19). Expect enemy ground reconnaissance from 240001ZJUN99 to 240600ZJUN99 in the following search area: 32UNB4046--32UNB4246--32UNB4240--32UNB4040. LTIOV: 240630ZJUN99.

It is clearly challenging to manage a collection of over 100 SIRs in a dynamic battlefield situation.

16. FM 34-2, p. 1-3.

17. Collection Management Tactics Techniques and Procedures (TTP), p. 9. To create a SOR, the requirements manager merges SIR with a specific unit which will provide the intelligence, a numeric reference to the applicable PIR, justification for collection of going to a higher headquarters, and a specific priority listing. There are a myriad formats for SOR, depending on the type of collection required, level of collection, unit SOP, and message format requirements. At division level, the most common format is the collection emphasis message (CEM). A sample SOR, derived from the above listed SIR, would be:

SOR 1 (HUMINT)--Report ground reconnaissance activity, especially presence or movement of BMP-2, BRDM-2, BTR-60, and BTR-80 vicinity NAI 13, 14, 15, 16, 17, and EA Saber (NAI 18 & 19). Expect enemy ground reconnaissance from 240001ZJUN99 to 240600ZJUN99 in the following search area: 32UNB4046--32UNB4246--32UNB4240--32UNB4040. LTIOV: 240630ZJUN99.

18. FM 34-2, p. 3-11.

19. *Ibid.*, p. 3-20.

20. *Ibid.*, p. 1-3.

21. *Ibid.*, p. 3-1.

22. Collection Management Tactics Techniques and Procedures (TTP), p. 6.

23. US Army, FM 34-1, Intelligence and Electronic Warfare Operations, (Washington, DC: Department of the Army, 1994), 2-4--2-5. Examples of HUMINT sources: Scouts, LRSD, Interrogators, Patrols; MASINT: Remotely Monitored Battlefield Sensor System (REMBASS), radars; SIGINT: Ground based TRQ-32, TRQ-152; IMINT: JSTARS, Photographic Aircraft, UAV.

24. Quirk, p. 170. The 24th ID commander specified seven standing PIR for the G2. Although these PIRs did not meet the doctrinal requirements for specifying when, where, etc., LTC Quirk states that he felt comfortable with his understanding of the CG's intelligence needs.

25. FM 34-2, p. 4-10.

26. Richard C. Halblieb, IEW Synchronization Plan White Paper, (Ft Huachuca: US Army Intelligence Center and School, 1992) , enclosure 3.
27. FM 34-2, p. 3-21.
28. FM 34-2, p. 2-3.
29. FM 34-1, p. 2-15.
30. Operation DESERT SHIELD/DESERT STORM, Center for Army Lessons Learned Observation Worksheets, AAR RD-008, DOC 1, p. 5. Many of the after action review comments included in these archive documents are also included in: John F. Stewart, "DESERT STORM: A 3d U.S. Army Perspective." Military Intelligence 17, no.4., (1994) . The archives contain much of the specific supporting documentation and comments from the Division and Corps G2s, as well as the input from the 3rd Army G2 staff.
31. US Army, Army Training and Evaluation Program 71-100-MTP. Mission Training Plan, Division Command Group and Staff, Final Draft (Unedited), (Washington, DC: Department of the Army, 1 May 1990), p. 5-91-3. The current ARTEP manual is outdated. The ARTEP still uses the old Division Tactical Operations Center Support Element as the intelligence center, vice the ACE. It does not address any of the updated structure or changes in operational procedures used by the current ASAS equipped ACE. The tasks listed for the collection management element of the division G2 must be updated to reflect the capabilities of the ACE:

Collection management doctrine must train collection managers in peacetime as they will fight in war. We must develop tactics, techniques, and procedures (TTP) in very specific detail to properly train collection managers, with the IEW synchronization methodology the foundation on which we develop the collection management TTP.
(Scales, SG MI-ARC-026, Doc 4, p. 4)

I have chosen to use the more up to date FM 34-2 as the doctrinal model for analyzing CM operations. The most current ARTEP 71-100 MTP does not support current operational analysis. The basic tasks are inadequate to evaluate CM operations systematically:

The 1995 Final Draft of ARTEP 71-100- describes seven subtasks for the base task, Perform Collection management. These seven operations are;

1. Determines the information the commander needs to know concerning the enemy and environment.
2. Prioritizes requirements into PIR/IR.
3. Prepares the collection plan.
4. Disseminates intelligence requirements.
5. Monitors the collection effort.
6. Coordinates tactical reconnaissance/surveillance operations.
7. Directs execution of tactical reconnaissance/surveillance operations once coordinated by the intelligence cell through the ASPS or the corps liaison officer at the BCE. The ARTEP is outdated. The Collection

Management Functions and Process Model provides the best and most current analytical model for evaluating CM operations and doctrine.

32. FM 34-1, p. 2-8.

33. WFX FER 91-7, p. III-1-2, WFX FER 92-3, p. III-1-1, WFX FER 93-4, p. III-1-1. While 34-1 lists all six requirements for the intelligence system, BCTP focuses on the most critical requirement--the commander's PIR. Recognizing the paramount status of the PIR, BCTP emphasizes the G2s ability to satisfy these requirements as the primary tool for analysis in this area of IEW operations.

34. Quirk, p. 171. Many of the DS/DS division orders are still classified SECRET; the specific PIRs cannot be included in this document. However, an unclassified example of poorly developed, all-encompassing PIRs are found in the ARCENT SUPCOM operations order:

- a. (FOUO) Will Iraqi forces pose any threat to deploying US forces? If so, when, where, and by what means?
- b. (FOUO) Will any groups employ terrorist measures against deploying US forces? If so, where, when, and what tactics/techniques and procedures are likely to be used?
- c. (FOUO) What are the threats to movement of US convoys? Are convoys likely to be targets of attack by terrorist/opposition groups operating in Kuwait? What techniques could be used to attack US convoys?
- d. (FOUO) What is the threat to US aircraft, including fixed wing transports and helicopters? What is the threat from hand-held SAMs? What SAMs are available to opposition groups in Kuwait? What groups have access to SAMs?
- e. (FOUO) Are any elements likely to try to prevent the deployment of US forces by causing incidents to create the impressions there is an internal or external threat to US forces? By what means are such incidents likely to take place? (Scales, THR-055, Doc 01)

Realizing that these PIRs were not developed by a tactical division, these are examples of the types of information requests overwhelming the 3rd Army and VII Corps RII system. These types of PIRs were entered into the system and may have competed with tactical unit PIRs for collection emphasis.

35. *Ibid.*, p. 176.

36. Stewart, p. 23-24.

37. *Ibid.*, p. 30.

38. Henry C. Shirah, Operational Aspects of Desert Shield and Desert Storm, (Carlisle Barracks: US Army War College, 1992) , p. 12. LTC Shirah was the commander of the 533rd MI Battalion, 3AD's MI CEWI unit during DS/DS. His War College research paper studies the challenges of preparing the MI Battalion for combat, and of operating in the desert environment after training for years to fight the GDP war of Central Europe. Additional information regarding the 533rd MI Battalion's DS/DS operations, including the Battalion S3's operational log extracts and chronological events list, can be found in Operation DESERT SHIELD/DESERT STORM, Center for Army Lessons Learned Observation Worksheets , SG AAR, 3rd-001, Doc 1, p. 13.

39. Quirk, p. 186. COL Quirk remarks many times in this study of his lack of emphasis on CM operations. He also wrote:

We failed to recognize important information, or to disseminate it in time. . . . To do so successfully would have required good communications with all collectors, lightening quick information management procedures, and most of all, sufficient numbers of senior analysts to judge all of the enemy's battlefield operating systems as well as the terrain and weather. (p. 22)

I had previously given the task [of map management] to the Collection Management and Dissemination Section (CM&D), knowing all the while that their primary duties were perhaps the most sophisticated and difficult in the G2 staff. . . . This responsibility threw the CM&D into near chaos during this crisis period. The map effort fully absorbed an extremely able young officer and two of our best NCOs, leaving only seven soldiers to answer the great many incoming requests for information, to dispatch new requests, and to automatically reproduce and disseminate information from incoming messages. (p. 48)

In practice, I did not assign enough senior specialists to the CM&D section to bring forth very much artistry. . . . Although I knew that CM&D was the key to Getting Intelligence as well as Giving Intelligence, I never installed enough talent and manpower to insure its success. . . . CM&D is a common casualty in our distribution of experience and technical expertise. Therefore, we need routines and tools which deal with that part of the job that is science, and which help the rare artist to maximize the value of its talents. (p. 196-197)

40. Ibid., p. 215.

41. Operation DESERT SHIELD/DESERT STORM, Center for Army Lessons Learned Observation Worksheets, Scales, 11D CMND RPT and LL, p. 9.

42. Operation DESERT SHIELD/DESERT STORM, Center for Army Lessons Learned Observation Worksheets, VII SG Hist, AAR 4-151. The heavy divisions in VII Corps each established an MI liaison with the Corps G2; 3AD and 1AD also established liaison officers with 3rd Army G2. In addition, they placed divisional imagery analysts in the JIC. None of these liaison officer positions were supported by the TOE. They had to be manned by cutting officers from somewhere else in the headquarters, including the division CM section and the analytical section. The G2s realized that a great deal of useful intelligence was available at Corps and EAC that the division would never receive without having its own representative there to "pull" the information out of the system.

43. Heymont, p. 33.
44. Halbleib, p. 3.
45. Quirk, p. 208.
46. Ibid., p. 93.
47. Operation DESERT SHIELD/DESERT STORM, Center for Army Lessons Learned Observation Worksheets, SCALES, ARCENT MI HIST, Ch 06, TGT Systems, p. 41; VII SG HIST AAR 4-151. In addition to the improved communication between the division G2 and the MI Battalion headquarters, the collocation of the analytical elements also improved the intelligence analysis effort. The TCAE's SIGINT and ELINT analysts productively integrated themselves into the All Source Production Section, improving the quality of the analysis and fusion in support of the tactical operation. The TCAE personnel also improved the targeting effort, by providing a quicker passage of targetable intelligence to the division Fire Support Element.
48. Quirk, p. 143.
49. Operation DESERT SHIELD/DESERT STORM, Center for Army Lessons Learned Observation Worksheets, ARCH Scales, SGMI ARC-043, Doc 8, p. 49.
50. Operation DESERT SHIELD/DESERT STORM, Center for Army Lessons Learned Observation Worksheets, ARCH Scales, SGMI ARC-043, USAREUR Memo#2.
51. Operation DESERT SHIELD/DESERT STORM, Center for Army Lessons Learned Observation Worksheets, Scales, SGMI ARC-026, Doc 1, p. 7. There was a concerted effort by 3rd Army and VII Corps to push experimental intelligence communications systems to the division G2s as they became available. While the concept seemed attractive to the 3rd Army staff and Project Managers, this process was very disruptive to the division G2 staff. The G2 was forced to provide soldiers, from an already short-handed staff, to learn how to operate these systems. This process was occurring up to and after the day the division crossed the line of departure on its attack into Iraq. The intelligence received from these systems was useless to the division, consisting mainly of unreadable imagery of areas outside the division's area of operations. The systems fielded to the division did not contribute one piece of useful intelligence to the commander during the war. LTC Quirk echoed this sentiment, noting, "First, it was clear that the Army G2s had not yet benefited very much by automation . . . message handling, for example, would have been a relatively simple function for our institution to automate . . . Unfortunately, we were left to our own devices in automation." (Quirk, p. 187)
52. Quirk, p. 157.
53. Ibid., p. 142.
54. Ibid., p. 176.
55. Ibid., p. 195.

56. Ibid., p. 194.
57. Operation DESERT SHIELD/DESERT STORM, Center for Army Lessons Learned Observation Worksheets, Scales, SG HIST AAR4-003; SG HIST AAR4-31; and MI ARC-026, Doc 1, p. 7.
58. FM 34-25-3, p. 1-1.
59. Jensen, Mark, "ASAS Arrives." Military Intelligence 21, no.1., (Ft Huachuca: US Army Intelligence Center and School, January 1995) , p. 29.
60. WFX FER 95-4, p. III-1-7; WFX FER 95-5, p. III-1-8.
61. US Army. Combined Arms Training Activity, "Battle Command Training Program Final Exercise Report War Fighter 94-4 (WFX 94-4) February 1994(U), (Ft Leavenworth: Center for Army Lessons Learned, US Army Combined Arms Command, Feb 1994) , p. III-1. Similar comments regarding the faulty development of PIR are found in BCTP WFX FERs 93-9, 93-7, 93-6, 93-4, 92-3, and 91-7.
62. US Army. Combined Arms Training Activity, "1994 Battle Command Training Perceptions (U)", (Ft Leavenworth: Center for Army Lessons Learned, US Army Combined Arms Command, June 1995) , various pages; and US Army. Combined Arms Training Activity, "1993 Battle Command Training Perceptions (U)", (Ft Leavenworth: Center for Army Lessons Learned, US Army Combined Arms Command, June 1994) , various pages. The Perceptions includes a listing of operational trends; elements that the BCTP OCs have observed units consistently doing well or doing poorly. The comments regarding Collection Management and PIR development noted these areas as needing improvement and training emphasis.
63. John F. Lady, "Directing Intelligence Operations I: 'To Link or Not Link' PIR," Military Intelligence 21, no.2., (Ft Huachuca: US Army Intelligence Center and School, 1995) , p. 6.
64. WFX FER 93-4, p. III-1-1. "The PIR development and dissemination process took up to 12 hours to complete. The G2 required extensive coordination and approval of all PIR. This process was often interrupted by competing demands on the deputy G2 and Collection Manager. The delay often rendered the PIR ineffectual."
65. WFX FER 94-4, p. III-1-2. Similar comments were recorded during subsequent WFXs:
- The PIR contained in the base plan and updated throughout the WFX require improvements to meet the standard prescribed by FM 34-2. Several published PIR lacked focus and contained multiple questions. For example, PIR 1 for Phase 1 asked for locations of all artillery that could range friendly forces between FAA ANIMAL and the line of departure./line of contact (LD/LC), essentially every fire support system in three enemy divisions. A preferable PIR would have focused on a specific artillery system or unit identified during war gaming whose suppression or elimination would be critical to accomplishing the mission. (WFX 95-5).

Throughout the WFX the CG was very specific about his intelligence requirements. Early in the operation, neither the G2 [nor the] CMO translated this guidance into PIR. (WFX 95-5, p III-1-2)

66. Alexandra Hofner, "Wargaming with the ASAS-W." Military Intelligence 21, no.1, (Ft Huachuca: US Army Intelligence Center and School, 1995), p. 37.

67. WFX FER 95-5, p. III-1-4.

68. US Army. Program of Instruction: Collection Management Operations, Course #233-F10, POI #B9BME, (Ft Huachuca: US Army Intelligence Center and School, January 1994) , various pages.

69. WFX FER 94-7, Briefing Slide. These PIRs were used by the BCTP OC team to demonstrate faulty PIR development and failure to meet the commanders stated intelligence needs. The CG had stated that his number one priority for the phase of the operation during which these PIRs were in effect was artillery. These PIRs do not focus the collection effort on the commanders' requirements, nor do they meet the basic doctrinal requirements for format and content. Each of these nine PIRs contains multiple questions, with no geographic reference, and an ineffective LTIOV. It would be incredibly difficult to develop SIRs for each, and to produce SORs to support collection. Listed below is another example of PIR to that fail to provide focus of scarce collection assets to support specific requirements:

Where and When will 67 MX Bde Commit? (LTIOV: Continuous)
Where and When will 65 MX Bde Commit? (LTIOV: Continuous)
Where and When will 47 MX Bde Commit? (LTIOV: Continuous)
Where and When will 38 MX Bde Commit? (LTIOV: Continuous)
Where and When will 66 MX Bde Commit? (LTIOV: Continuous)
Where and When will 36 MX Bde Commit? (LTIOV: Continuous)
Where and When will 33 MX Bde Commit? (LTIOV: Continuous)
Location of 420 MX Corps CAG and Associated ADA? (ANLT: 200600) (LTIOV: 201800)
Where will Mech Bdes Infiltrate into Zone on our West Flank? (LTIOV: Continuous)

70. WFX FER 95-7, p. III-1-4.

71. WFX FER 95-5, p. III-1-4.

72. WFX FER 94-4, p. III-4.

73. WFX FER 95-5, p. III-1-4.

74. Mark Ingram, "ASAS (All-Source Analysis System) and the First Cavalry Division," Military Intelligence 21, no.1., (Ft Huachuca: US Army Intelligence Center and School, 1995) , p. 26.

75. WFX FER 93-4, pp. III-1-2 to III-1-4.

76. WFX FER 92-3, p. III-1-2.
77. WFX FER 95-4, p. III-1-5
78. WFX FER 95-5, p. III-1-5.
79. WFX FER 95-3, p. III-1-5; WFX FER 95-4, p. III-1-5
80. WFX FER 95-4, p. III-1-5
81. WFX FER 93-4, p. III-1-5; WFX FER 95-4, p. III-1-4; WFX FER 95-5, p. III-1-4.
82. WFX FER 95-5, p. III-1-5.
83. US Army. Program of Instruction: Collection Management Operations, Course #233-F10, POI #B9BME, (Ft Huachuca: US Army Intelligence Center and School, January 1994) , various pages.
84. WFX FER 92-3, p. III-1-5; WFX FER 93-4, p. III-1-10; WFX FER 93-9, p. III-1-12.
85. WFX FER 95-5, p. III-1-10.
86. Jensen, p. 26.
87. David R. Manki, Collection Management and Dissemination: An Anchor in the Race Against Time, (Ft Leavenworth: US Army Command and General Staff College, 1990), p. 25.
88. WFX FER 95-7, p. III-1-2.
89. Jensen, p. 30. Mr. Jensen describes the primary automated features of the ASAS:
 1. Parsing. Three reports, each from a different intelligence discipline, are sent to ASAS which automatically parses them (or breaks them down into individual data elements).
 2. Alarms. Information in one of the three reports matches alarm criteria set by the situation analyst. ASAS then forwards a copy of the appropriate data to the situation analysts alarm queue. Upon review, the analyst determines to disseminate the information. The analyst presses a single button which automatically generates a threat alert message that contains the pertinent information and releases it to the area communications (e.g., Mobile Subscriber Equipment).
 3. Correlation. Simultaneously, the system determines (based on criteria already set by an all-source analyst) that the three messages are all reporting on the same entity (e.g., enemy unit, equipment, or installation). ASAS then automatically takes the best data from all reports, merges them with the existing record on the entity in the All-Source Correlated Data Base (ASCDB), and updates the near-real-time display.

4. Notices. Because the entity is one that the target analyst previously nominated as a target to the Fire Support Element, the system automatically calculates the significance of the update. Since the new information about that entity exceeds the analyst specified threshold for change (e.g., a new location that is a certain number of kilometers away from its previous location), ASAS forwards a notice to the target analyst. If the analyst determines that the entity should be renominated as a target, the system autofills an outgoing target Intelligence Data (TIDAT) message with the appropriate data before its final release by the analyst.

90. WFX FER 92-3, p. III-1-1

91. Allen D. Campen, ed., The First Information War, (Fairfax, VA: AFCEA International Press, 1992), p. 52. The author also writes:

Sensor technologies excel at collecting and disgorging raw data and richly deserve plaudits for intensive development in satellite photography and signals exploitation in the past two decades. Nevertheless, while intelligence support may begin with data collection, it does not end until these data are transformed into militarily useful information and delivered to key command and control and fire support nodes in time to be used to direct maneuver forces or execute strikes. (Campen, p. 54.)

92. US Army. MI Structure--The Analysis and Control Element: Organization, Equipment, and Operations. (Briefing presented to Command and General Staff Students by the US Army Intelligence Center and School, August 1995). BG Charles Thomas, Commanding General of the US Army MI Center and School, commented to the 1995 CGSC class that the MI Branch and ASAS was about two years ahead of the rest of the Army in development of automated command and control systems. He stated that the capabilities of ASAS could not be fully realized until the remaining elements of the Army C2 system comes on line.

93. Lady, p. 6. Major Lady's comments are echoed in many of the BCTP FERs. Typical of the FER comments:

FM 34-2 contains an exhaustive examination of how to articulate and maintain status of PIR. Recommend the G2 and CMO examine internal procedures with regard to handling PIR and update them in light of the standards detailed in FM 34-2. (WFX 95-5, pIII-1-3)

94. US Army. ASAS-CE User Functional Description (UFD), (Washington, DC: ODCSOPS-FDI, 1994), p. 5.

95. US Army. 124th MI Battalion, 24th Infantry Division (Mechanized), Analysis and Control Element, Field Standard Operating Procedure, (Ft Stewart, GA: 124th MI Battalion, 1995)

96. ODSOPS-FDI, p. 6.

97. Albert L. Kubala, A Preliminary MANPRINT Evaluation of the All-Source Analysis System (ASAS), (Alexandria, VA: Essex Corp., 1988), various pages.

Manning is one aspect of the ASAS under review. The TO&E structure of the ACE may be increased based on comments from G2s and BCTP observers. The issue is the true effectiveness of ASAS to replace manual functions, while the division G2 sections are required to conduct both manual and automated operations. One study indicates a 38% increase in efficiency in a G2 section using the capabilities of ASAS; The same study cautions, however, that these results should not be interpreted to mean that personnel and/or positions can necessarily be eliminated. The study's author writes, "In this latter case, it would be more appropriate to consider the time saved from current information processing functions as being available for the performance of other functions which, in turn, would improve the level of command and control effectiveness." (McCallum, p13)

24th ID, as of 04 Apr 95, was still not fully with personnel or equipment. They were operating at 60-65% strength in key personnel. The 24ID FSOP reflects the manning shortfalls in the CM section: "Due to manning constraints, no single individual works just one area [Collection, Requirement, and Mission management], but must be prepared to function in all areas. (24ID FSOP)

These same personnel shortages are present in the Army's most combat ready, and highest priority division, the 82nd Airborne Division:

Personnel Shortages in the 82nd Airborne Division ACE:

Overall--Sort 33 soldiers; May 1995--short 37 soldiers. In CM section, shortages are:

CM&D OIC-- (-1)
CM&D NCOIC-- (-2)
RII NCO-- (-2)
Automation NCO-- (-1)
Journal Clerk-- (-1)
R&S-- (-2)
Dissem/TACLAN-- OK
Coll Enclave-- OK

Total-- (16 req/6 O/H) (See Appendix 5 for 82nd ABN DIV ACE battle roster-- although the 82nd is an airborne division, the personnel situation is indicative of Army wide status. Would actually the 82nd to be in better shape than most units given readiness requirements.

98. Manki, p. 23.

99. WFX FER 95-4, p. III-1-6, WFX FER 95-5, p. III-1-7, WFX FER 95-7, p. III-1-5.

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*Due to classified exercise scenarios, BCTP FERS for WFX 91-7, 93-6, 94-11& 5 and 95-7 are classified SECRET. Only unclassified comments will be used in this monograph.

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